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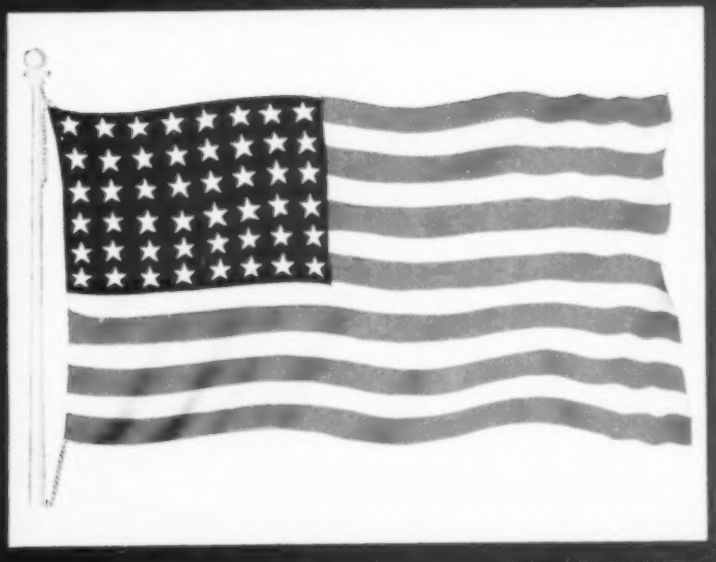

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Editorials

Holmes, Semmelweis and Lister

There is ample evidence in recent surgical literature to indicate that staphylococcic (*Micrococcus pyogenes* var *aureus)* infections of hospitalized patients have become a matter of grave concern during the past few years. Many articles have appeared in the medical literature reporting severe micrococcal infections of surgical wounds, lactating breasts and infant integument. Postoperative sepsis caused by this organism has reached such serious proportions in some institutions that at least one hospital, in England, was completely closed down for renovation.

It has been well established that most of these infections are caused by cross-infection within the hospital environment. This very fact suggests that such micrococcal infections should be preventable. Because antibiotics have been so widely, even indiscriminately, used in the past we are confronted with the additional problem that nearly three-fourths of all strains of staphylococci in large hospitals of the world are now resistant to antibiotics.

The prevalent organisms in any hospital rapidly become resistant to every new antibiotic after it has begun to be used within that hospital. This is particularly true of Staphylococcus, E. coli and Pseudomonas organisms.

The University of California Hospitals launched a novel counterattack against this troublesome phenomenon in 1956. The hospital staff restricted the use of Novobiocin, to which the staphylococci were sensitive. This drug could be prescribed only when the physician certified that the patient had a serious staphylococcal infection. In fifteen months less than two dozen patients received Novobiocin. The drug was therapeutically effective and at times life-saving in these cases. Just as important—the staphylococci endemic to the hospital are still sensitive to Novobiocin. Our medical staffs might well profit by adopting a similar program within their respective hospitals.

Every institution which has taken measures to control hospital infections substantially follows a program which includes improved aseptic technique; better control of environmental vectors such as blankets, dressing carts and the like; epidemiologic survey of physicians and hospital personnel and a meticulous program of contaminated wound management. Of all these measures, the most important appears to be strict asepsis. Perhaps it is time for us to read again the papers of Holmes, Semmelweis and Lister. The basic and fundamental principles of asepsis established by these great pioneers have not been abrogated by the advent of today's latest miracle drug.—*J.G.M., M.D.*

The Prognosis of Rheumatic Fever

The difficulties in the diagnosis of acute rheumatic fever has been long emphasized, as well as the good advice that this label should not be placed upon a patient of any age unless the medical evidence clearly warrants the diagnosis. Indeed, this led the late Dr. T. Duckett Jones to define a set of criteria relating to the major and minor manifestations of rheumatic fever. Despite the rapidity of medical progress, and the passage of many years, these criteria are still accepted as valid. The august councils most intimately concerned with rheumatic fever accept the modified Jones criteria as the best diagnostic index available. Studies on beta-hemolytic streptococcal infections, especially in military personnel by Rammelkamp and Seal and their associates, have helped to clarify the epidemiology of rheumatic fever. Furthermore, great light has been shed upon the prevention and control of this affliction by adequate antibiotic therapy of the acute streptococcal infection and prophylaxis in *all* patients who clearly had rheumatic fever.

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The major unanswered questions have been in the area relating to rheumatic carditis. Inasmuch as the acute rheumatic process is not known to be permanently damaging to life or the health of the individual patient *unless* it affects the myocardium and the heart valves, then the necessary focus of attention has centered upon the prevention of this tragic sequel. One approach, used by many careful and thoughtful physicians, was the widespread use of the corticosteroid hormones as anti-inflammatory agents in *all* cases of acute rheumatic fever. This philosophy has been a source of kindly friction among physicians since the joint report of the American and British Heart Associations showed that the acute attack of rheumatic fever was better handled symptomatically by aspirin than by corticosteroids. Yet this still did not answer the question of whether rheumatic carditis might ensue following either therapeutic regimen, or whether one program was more protective than another.

At a recent meeting of the American Federation for Clinical Research in Atlantic City, Drs. Alvan R. Feinstein and Rodolfo Di Massa of the New York University College of Medicine and Irvington House, Irvington-on-Hudson, New York, reported their data that may be cogent clues in answering this question. They had followed 315 children and adolescents who had had unequivocal acute rheumatic fever. The follow-up period averaged 4.8 years with a range of 2-9 years. Nearly 80% of these patients had been followed four years or more. Despite other evidences of "rheumatic carditis" during the acute episode, such as congestive failure, pericardial effusion, etc., the patients were classified as to murmurs. The diagnosis of *Valvulitis* was placed on 96 patients without previous heart disease, in whom a definite diastolic murmur appeared or disappeared during the acute attack. Of this group, two-thirds now have rheumatic heart disease. Patients who developed a new loud apical systolic murmur or a questionable diastolic murmur were termed *probable valvulitis*. Thirty per cent of these patients now have rheumatic heart disease.

Despite other evidences of "carditis," such as a prolonged P-R intervals, systolic murmurs, congestive failure, gallop rhythms, increase in heart size by x-ray, and other common observations in the acute attack, *no patient without valvulitis as defined above developed rheumatic carditis leading to residual heart disease.* As the authors so carefully stated, "The results also indicate renewed importance for the stethoscope as a diagnostic tool."

They might well have added that despite all of our tremendous advances in the technology and pharmacopeia of medical practice, we are indeed at times treating ourselves by the exorbitant utilization of potentially dangerous drugs such as the corticosteroid hormones during the course of acute rheumatic fever. It remains to be answered, of course, whether these agents have diminished the incidence of valvular heart disease, but to date the studies of the American and British Heart Associations would not support such a thesis. Their five-year follow-up report will thus be eagerly awaited. Meanwhile a word of caution to all physicians seems appropriate. Carefully validated and properly controlled studies are the only way to answer such a tenuous question as to the prognosis of rheumatic carditis.—*T.H.H., M.D.*

W. S. Willour, M.D.

About 10:25 p.m., May 23rd, 1958, in St. Mary's Hospital, McAlester, Oklahoma, where he had been a patient for a few weeks, Leonard Scott Willour expired. The last few days of his life there was evidence of improvement in his health; he was out of bed a part of the time and had seemed to enjoy the evening meal on the day of his passing.

The members of his immediate family now living are the widow, Mary Willour, of the home, a sister, Margaret Willour, of Oklahoma City, a daughter, Mary Noury, and her three children, of Duncan, Oklahoma.

At an early age Scott let it be generally known that he intended to be a doctor of medicine. Graduating from high school in 1896, at the age of 16, he would have entered medical college at once but no school would admit him when so young. He, therefore, marked time at the Pennsylvania State Teacher's College, Mansfield, Pennsylvania

for one year. Matriculating at Medico-Chi September 20, 1897, he was graduated May 25, 1901, a full fledged M.D. at the age of 21. Among his professors he admired and was impressed most by Doctor William J. Rodman, who had been called from Louisville, Kentucky, to be professor of surgery in Medico-Chi.

After interning at St. Luke's Hospital, Bethlehem, Pennsylvania, he did general practice in rural Pennsylvania until the autumn of 1905, when he came to Olney, Oklahoma, where he remained about one year. Moving to Atoka, he continued general practice until 1912, when a long cherished desire of his to specialize in surgery was gratified by the opportunity to become associated with Doctor LeRoy Long at McAlester. This association continued until Doctor Long moved to Oklahoma City as dean of the O.U. medical school.

Doctor Willour enlisted as first lieutenant in the medical corps of the army in May 1917, and was assigned to the fifth engineers at El Paso, Texas. In September of the same year he was promoted to captaincy, given a short course in orthopedic surgery and stationed at Camp McArthur, Waco, Texas. The following year he became a major and was sent overseas as chief surgeon of base hospital No. 94. He was discharged at Camp Dix May 20, 1919, and later attained the rank of lieutenant colonel, then colonel in the reserve. At his own request he was put on the inactive list in 1936 and was retired in 1945.

To most of the medical profession of Oklahoma he is known chiefly as having been secretary-treasurer of the State Medical Association and Editor of the *Journal* from 1933 to 1940. While carrying on a surgical practice, having only one clerical assistant, and receiving a nominal salary he issued a creditable *Journal* and conducted the affairs of the office efficiently. Having been president in 1918-19 and councilor for twenty years, he had a familiarity with the requirement of the office which was helpful.

A 33° Mason, he was for a number of years a member of the consistory quartet. He also had the distinction of having been the only man to serve two terms as president of the McAlester Lions Club.

His intense interest in child welfare was evidenced by his activity as a director of the Crippled Children's Society and extensive surgery done gratis by him for those sponsored by this humanitarian organization. Perhaps not so generally known is the fact that he directed successfully a youths' chorus in the Presbyterian Church.

He often said that he wished never to retire and he did not. Until the last few weeks of his life, he went daily to his office in the McAlester Clinic, which he, Doctor J. F. Park, Doctor E. H. Shuller, and the late Doctor J. A. Munn established in 1936. No other interest superseded that of professional attainment as indicated by the following: Member of Pittsburg County, Oklahoma State, and American Medical Association, American College of Surgeons, International College of Surgeons, S. W. Surgical Congress, and Oklahoma Orthopedic Society.

Doctor Willour's predominating characteristics emanated from his extraversion. Surely, everyone who knew him would say that he was a pronounced extravert. When sold on a proposition and convinced that something should be done, he was for going all out to get it done. In short, he was a man of action. He had that rare quality of being able to argue the merits of an issue without indulging in personalities, of disagreeing bitterly but remaining the friend of his opponent.

Those of us who knew him longest and best, remember him as a capable and conscientious man of medicine, a genial companion, a faithful friend.—*T. H. McCarley, M.D.*

THE COVER

In the same immortal spirit of Francis Scott Key, let us never lose sight of our country's struggle for independence and continue to remind ourselves that the freedom of the nation as well as of the individual are constantly being subjected to increasing dangers; that freedom is as difficult to maintain as to achieve.

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Scientific Articles

Analysis of the Back Injuries *of the* Tri-State District

M. A. CONNELL, M.D.

THE AUTHOR

M. A. Connell, M.D., graduated from the University of Oklahoma School of Medicine in 1932 and he is now a Preceptor of this school. His specialty is industrial medicine.

Doctor Connell is a member of the Industrial Medical Association, the Fracture Society and the American Association of Railway Surgeons.

In presenting a paper on Back Injuries before the Oklahoma State Medical Association, we thought that we should present the picture as it developed in the Tri-State field over a five year period and to classify the various types of injuries along with their final result. We have attempted to show what, in our opinion, are some of the factors responsible for these conditions and to make suggestions which may be of definite benefit in reducing the incident of back injuries, with their associated disabilities. In doing this, we have obtained the statistical data for a period between 1950 and 1954, inclusive, and have attempted to analyze all of the back injuries; to classify them and to correlate them with the pre-employment examinations which had been made previous to their employment or injury. Finally, with the interpretation of this information we felt that certain recommendations for their reduction would be quite obvious.

This paper represents the experience which we had in the treatment and management of back injuries in the Tri-State area of Missouri, Kansas and Oklahoma. This Tri-State district is a zinc mining area in which the zinc is associated with flint rock and is mined at a level of approximately two hundred to three hundred feet. This paper represents all of the back injuries, whether in the mining, milling or surface working of the district, and includes approximately 95 per cent of all of the operations in the field.

Between the years 1950 and 1954, inclusive, we treated 5,727 injuries, which included all types of injuries whether minor or major. Of this number 545 injuries were classified as back injuries. This included all types of injury or complaint of injury to the spine extending from the cervical to and including the coccyx. This included also all of the injuries which may have been caused by direct trauma as well as those in which there was no actual contact with the body. The 545 injuries represent 9.5 per cent of the total number.

In determining the cause of the alleged injury, the history as given by the patient was used in all cases except those caused by direct trauma. There were fifteen distinct causes which we thought should be classified separately and which we have listed in chart number one.

CAUSES OF ACCIDENTS
Total 545

	Number	*Percent of Total*
Lifting	255	46.8%
Fall	65	11.9%
Jerked a kink	42	7.7%
Direct trauma	39	7.1%
Pulling	28	5.1%
Moving object, slipped	20	3.6%
Pushing	16	3.1%
Jarr	16	3.1%
Prying	14	2.5%
Shoveling	14	2.6%
Beating with hammer	13	2.4%
Started hurting	12	2.2%
Bending	8	1.4%
Climbing	2	.3%
Electric shock	1	.1%

Chart 1

In reviewing this chart it is obvious that lifting was the causitive factor in 255 cases

In the lateral X-ray of this lumbar spine we see two defects on the anterior margin of the second and third lumbar vertebra. These conditions, of course, are of long standing and are probably due to pressure from the intervertebral disc in these areas. This condition of course should be recognized previous to the individuals employment although we do not consider this condition disabling in any way or that it can be aggravated.

or 46.8 per cent of all of the back injuries, and that direct trauma represented 7.1 per cent of the back injuries. This alone should be indicative of what may be accomplished in attempting to reduce the causes of these injuries.

For a number of years it has been felt by most industrial surgeons that certain pathological or congenital conditions seen in the bony and supporting structures of the back are contributing factors in the development of pain in the back and the prolongation of this symptom. With this fact in mind, we attempted to group our injuries into two separate groups, one in which there were contributing findings on the roentgenogram of the back and the other in which there were none.

The findings which are non-contributing to the development of back pain are:

(1) Negative X-ray findings or no visible or apparent abnormalities.

(2) The presence of a sixth lumbar vertebra or a rudimentary lumbarlized or sacralized vertebra which may be sacralized bilaterally.

(3) Simple spina bifida occulta.

(4) The presence of centers of ossification on the bodies of the lumbar vertebra.

The contributing conditions noted in the roentgenogram findings are:

(1) A thinning of an intervertebral space with or without a backward displacement of the proximal vertebra on the distal vertebra.

(2) A spondylolisthesis of a proximal vertebra on a distal vertebra. This may or

This lateral X-ray shows a marked thinning of the intervertebral space between the fifth or possible sixth lumbar vertebra and the sacrum. This thinning is probably accompanied by a bilateral sacralization of a fifth lumber vertebra. We feel that this is a rudimentary type space and did not have a disc, therefore is a congenital lesion rather than a traumatic one. Because of this, it is our opinion that this back is in no way weakened by this condition.

may not be accompanied by a thinning of an intervertebral space.

(3) A generalized exostosis or localized exostosis ordinarily seen on the bodies of

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the vertebra. This is an osteo-arthritic change or a hypertrophic type of arthritis of the spine.

(4) A rudimentary or extra lumbar vertebra which is sacralized on one side represents the instable type of back which we feel is contributory to pain.

(5) There may exist a thinning of an intervertebral space with an accompanying generalized or localized arthritic change represented by an exostosis. Ordinarily, if the exosotosis is localized only to the area in which the thinning has occurred this is indicative of an inflamatory process which has been present over a long period and

This lateral X-ray film reveals an irregularity in the surfaces of the bodies of the vertebra. This condition is due to a weakness of an intervertebral disc causing pressure against the bodies of the vertebra resulting in an irregularity in these bodies. This condition has been described by Schmorl and is commonly known as Schmorl's nodes. The condition itself has no particular significance so far as pain and discomfort, however it does indicate a weakness in the structure of the intervertebral disc with a pressure being exerted against the bodies of the vertebra.

which may at any time result in pain in the back.

Now let us divide the back injuries into those who did lose time and those who did not lose time, and into those whose backs

This X-ray shows a thinning of the anterior margin of the second lumbar vertebra. Undoubtedly this thinning has been the result of a mild compression fracture which may have gone unrecognized and possibly untreated. Associated with this is also a thinning of the intervertebral space between the first and second lumbar vertebra. Should this condition not have been recognized on pre-employment examination, a history of back injury with this resulting thinning may be sufficient findings to warrant a diagnosis of a fracture of the body of the second lumbar with an injury to the intervertebral disc between the first and second lumbar vertebra.

showed definite contributing findings and those whose backs did not. Of the 545 back injuries, 415 or 76.1 per cent, did not lose any time but continued working under treatment and observation. One hundred thirty, or 23.8 per cent, lost time because of a painful back and this group lost 4,170 days or an average of 32.1 days per patient. The 130 patients who lost time were further divided as follows:

(1) Those having had direct trauma.

Sixteen of the patients fell into the group who had direct trauma with definite acute bony pathology. They represented 12.2 per cent and lost 1,540 days or an average of 96.2 days per patient.

This shows a spine with an acute scolioses with thinning of the intervertebral spaces, in the anterior posterior view. Associated with this is a generalized osteo-arthritic change shown by the exostosis of the bodies of the vertebra. Undoubtedly this condition has developed over a great number of years and, in our opinion, is not the result of any single trauma. It is certainly well to have this X-ray previous to the empolyment of this patient. If, during the course of the patient's employment, he does develop an arthritic spine it will be possible to change his occupation to one which would afford him less trauma to his back.

(2) Those whose roentgenograms revealed contributing findings. Seventy of the patients, or 53.8 per cent, fell in this group and lost 2,086 days or an average of 29.8 days per patient.

(3) Those whose backs revealed non-contributing findings. Forty-four, or 33.9 per cent, of the patients fell into this group and lost 540 days or an average of 12.5 days per patient.

From this chart, it is obvious that the direct trauma, in which a patient either fell directly upon his back or was struck by a falling object, caused severe injury with prolonged convalescence and with resulting disability. It is also obvious that those patients whose pre-employment roentgenograms revealed contributing findings are much more susceptible to prolonged disability and that it occurs in a higher percent of cases.

At the present time all of these patients have been dismissed from treatment and those with permanent disability have been awarded this disability.

PERMANENT DISABILITY

Total 13

Direct Trauma	*Contributing findings*	*Non-Contributing findings*
FOUR	**NINE**	**NONE**
1— 8%	1—Total Permanent	
1—10%	*5—25%	
1—25%	1—20%	
1—25%	2—15%	

*Two of those awarded 25% of a total permanent disability had surgical procedures performed on their back and following this the disability was determined to be 25%.

Chart II

This lateral X-ray shows two conditions very commonly seen in the pre-employment back X-ray. The first condition is a marked exostosis on the anterior margin of the fourth lumbar vertebra. This condition, isolated as it is, would indicate a definite irritation in this area for some cause. There is a spondylolethesis of a second degree noticed between the fifth lumbar vertebra and the sacrum with a rather acute angle of the sacrum. It is our opinion that this condition can definitely be aggravated and is a disabling condition.

Without considering those cases which had direct trauma, we concluded from this data that the patients who had some type of contributing pathology in their spine previous to their alleged injury were much

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This X-ray reveals an acute thinning of the intervertebral space between the fifth lumbar vertebra and the sacrum with a slight backward displacement of the fifth lumbar vertebra on the sacrum. This could easily represent the loss of an intervetebral disc because of the backward displacement of the fifth on the sacrum. This back may be indicative of future pain since undoubtedly there has been a loss of disc substance.

more susceptible to prolonged periods of disability and had a higher degree of permanent disability than those having negative or non-contributing findings. As we study this data it is obvious that a great many conclusions and recommendations may be drawn, however, we think that we would like at this time to stress only four very important observations:

(1) From these charts we note that a great number of accidents result from conditions which have been brought about by the patient himself. The tremendously high percent of injuries resulting from lifting alone offers a challenge in attempting to reduce this most obvious cause. This, of course, is an engineering problem with the cooperation of the industrial surgeon or plant surgeon. Through a cooperative effort it may be possible to reduce the hazard by reducing the size of the objects lifted and by teaching the workmen the proper method of lifting. Perhaps a short session of demonstrations may impress upon the employee the importance of protecting his back in lifting. This, we think, would apply to several of the other categories such as shoveling and pushing. A constant surveilance of the property by the engineer will reduce the hazards associated with direct trauma which has actually caused the greatest period of disability, but is actually only a small percent of the cases. This again is definitely an engineering problem. A certain number of causes seem to be due to the patients

This represents a moderately advanced spondylolethesis between the fourth lumbar vertebra and the fifth with a thinning of the intervertebral space which would indicate loss of disc substance. This condition, undoubtedly, is susceptible to aggravation and pain and discomfort in the back and likewise could result in definite nerve root pressure. Should this patient develop symptoms while in employment, undoubtedly the condition could be attributed to an injury. However, the pre-employment examination shows very clearly that this was a pre-existing condition and would be of definite benefit in a final diagnosis should this patient be employed.

walking, lifting or carrying on unsteady ground or footing so that they have fallen because of rolling objects or other irregularities underfoot. Again, safety engineering may help this.

(2) Perhaps you have noted that 75 per cent of all of the alleged injuries lost no

This X-ray shows a unilateral sacralization of a fifth lumbar vertebra with a definite evidence of fusion between the transverse process on one side with a normal transverse process on the other. It is our opinion that this condition makes for an unstable type of back and in all probability could lead to back pain and nerve root irritation. This, of course, is a congenital condition however should the patient's back become painful during his course of employment there would always be a question of aggravation. This condition is one which we believe deserves serious consideration in the employment of an applicant.

time. Actually this figure is somewhat higher if we consider that a certain percent of these patients had direct trauma and obviously were unable to continue work. Our treatment is directed toward continuous working, under treatment and observation, of these patients. Unless we can find some definite physical finding to contra-indicate continuous work, we recommend and encourage the patients continuing their ordinary manual labor while under treatment. The treatment which we employ in itself is relatively simple. We hospitalize only the most acute cases and we attempt ambulatory treatment of all except the most acute. The treatment consists of Salicylates often supplemented by the use of Codeine or other analgesic drugs. The back is usually braced for a short period of time, ordinarily using adhesive strapping, and physical therapy is used to a minor degree. These patients are encouraged to continue their work and are seen in our office after work or during breaks in their daily routine.

(3) Since our treatment is actually pointed toward early rehabilitation or continuous employment of the patients, we feel that cooperation on both the part of the employer and employee will benefit the employee in his convalescence and in his wage earning during his convalescence. We advocate the change of employment, if possible, to a different type of work during this convalescence.

(4) Finally, it is our opinion that the pre-employment of pre-placement X-ray examination of the employee will do more in the reduction of the number of back injuries and in the reduction of the disability, both temporary and permanent. We think that these individuals should be given a pre-employment examination with X-rays of the lumbar spine and that they should be employed in those occupations which would afford them the least possible hazard. It is obvious that a long time employee will develop contributing findings during the course of his employment, and it is obvious that this employee should not be penalized because of this. However, if it would be at all possible to place him in such an employment that his back condition would not be subjected to heavy trauma, such as lifting, pushing or any of the other causes, it would reduce this risk of injury and eliminate the possibility of a long convalescence and possible permanent disability.

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330 F, N. W., Miami, Oklahoma

CLINICAL PATHOLOGICAL CONFERENCE

J. P. COLMORE, M.D. and WILLIAM E. JAQUES, M.D.

Case Presentation

Patient: R. C. M., 17 year white male.

Chief Complaint: Vomiting, swelling of face, feet, and abdomen.

Present Illness: Two years ago the patient was treated for an episode of generalized edema, nausea, vomiting, oliguria, and hematuria, of about three months duration. He had no recurrence until about thirteen days before admission when there developed periorbital facial edema followed shortly by abdominal distension. There was slight to moderate oliguria, but no dysuria and the urine remained clear and of the usual color. About seven days later he had transitory pedal edema, which recurred about three days later and was accompanied by orthopnea and dyspnea. For about a week before admission there had been intermittent nausea with vomiting and a slight cough, gradually increasing in severity. There was slight hemoptysis for three days before admission. He was treated with diuretics by his local physician, apparently without effect.

Past History: Diphtheria at the age of five years; pneumonia in infancy, and again during the fifth year of life; intermittent attacks of tonsillitis until tonsillectomy at about the age of nine. At this time and again at the age of 15, he was told by a physician that he had a "bad heart." There is no history of swollen joints. Last year he had an operation for intussusception, with uneventful recovery.

Family History: Mother, age 42, father, age 52, and five siblings all living and well. The maternal grandmother died of a "stroke." The paternal grandfather died of "heart trouble." A paternal uncle died of "kidney trouble." A maternal great aunt died of "dropsy." Another maternal great aunt had "gallstones."

Physical Examination: Revealed a small, fairly well nourished, alert, cooperative, white male youth, who appeared acutely ill. T. 98° F., P. 94 and regular, R. 56, and BP 160/110. He was orthopneic and coughing up blood-tinged mucus. There was periorbital and facial edema, and marked pedal edema. The abdomen was distended and shifting dullness was present. Skin and mucous membranes were quite pale. The neck veins were distended and pulsating. The left heart border was 2 cm. outside the midclavicular line to percussion. There was a soft systolic murmur at the apex. The liver was slightly tender and extended 8 cm. below the costal margin in the right midclavicular line. No other masses were palpable in the abdomen. There were palpable, small, discrete, nontender, anterior and posterior cervical lymph nodes.

Laboratory Data: Urinalysis revealed 3-4+ proteinuria with innumerable red and white cells in the sediment. The blood

THE AUTHORS

John Palmer Colmore, M.D., graduated from the College of Physicians and Surgeons, Columbia University, New York City, in 1946. His practice is limited to his specialty of internal medicine. Doctor Colmore interned at Bellevue Hospital, New York City, served a one-year residency at Goldwater Memorial Hospital, New York City, and two years at the Bronx Veterans Administration Hospital, New York City.

At the present time, Doctor Colmore is Associate Professor of Medicine, University of Oklahoma School of Medicine. He is a member of the American Federation for Clinical Research, the New York Academy of Science, the American Heart Association, the Sigma Xi and the American Association for the Advancement of Science.

William E. Jacques, M.D., graduated from McGill University Faculty of Medicine in 1942. His practice is limited to his specialty, Pathology. He has been certified by the American Board of Pathology and at present is Chairman and Professor of Pathology at the University of Oklahoma School of Medicine.

Doctor Jaques is a member of the American Society Experimental Pathology, the American Association of Pathology and Bacteriologists, the International Academy of Pathology and the American Society of Clinical Pathology.

contained 6.5 gm.% hemoglobulin; 2,980,000 RBC's/cu.mm., 15,350 WBC's/cu.mm. with 86% neutrophils and 14% lymphocytes. BUN was 100 mg.%; the serum protein and A/G ratio were reported as being within normal limits. The blood Mazzini was negative.

Hospital Course: The patient continued a steady downhill course despite rapid digitalization with digitoxin and divided doses of morphine sulfate for rest. On the third hospital day it was noted that he appeared somewhat more somnolent and lethargic, with a heart rate of 120 and gallop rhythm. Hypertonic solutions of glucose were given intravenously without perceptible effect. On the fifth hospital day he appeared somewhat irrational; however, the pulse had declined to 80 and rhythm appeared more regular. An ECG at this time showed a partial heart block, recurrent ventricular extrasystoles, and left ventricular hypertrophy. On the seventh hospital day a pericardial friction rub was heard and an x-ray examination revealed that the heart appeared markedly increased in size with accentuation of the hilar vascular markings. There appeared to be somewhat more fluid in the chest than had been previously noted. At 2:30 p.m. on the seventh hospital day the patient expired.

Differential Diagnosis

Dr. Colmore: There are a couple of questions that I would like to ask before starting out. In the physical examination, at the end of the second line, it says "R. 56"—which I presume refers to the respiratory rate. I would like to know if this is a typographical error, or if he was breathing that rapidly.

Dr. Jaques: That is correct.

Dr. Colmore: This is not a typographical error. Now, the history here is a little bit brief, but contains certain elements that are very intriguing indeed. As we go through, we are told that two years ago he was treated for generalized edema, nausea, vomiting, oliguria, and hematuria, of about three months duration. This comprises the entire historical data about his previous hospitalization. Obviously there are many questions I would like answered; I presume I won't get them answered. I am interested specifically in whether this illness was preceded by an upper respiratory infection, and if so, how far in advance of the onset of his symptoms. We are not told what the level of his blood pressure was, what his urinary findings were, what the eye grounds showed at that time, what was the urinalysis subsequent to his discharge from the hospital, and not the least important point is he was treated, but how? All these I consider significant points and I don't have any information on them.

We are to presume that he was clinically well, since it is stated that he had no recurrence until 13 days before the present admission when he had essentially the onset of the same illness except, I believe, that he did not have gross hematuria the second time. He also had, in addition, slight hemoptysis; I don't know quite how to interpret that, but at least he had it. He received diuretics from his local physician, and these were without effect.

In the past history I think it is significant that he had intermittent attacks of tonsillitis until a tonsillectomy at the age of nine. Then again at the age of nine and at 15 we are told that he had a "bad heart." I have no idea what this infers, but I do know that at the age of 15 it would be two years prior to the onset of his terminal illness, which would date exactly with the episode described previously. It is difficult to know if this has reference to murmurs, one would suspect perhaps it did, and a little later in the physical examination we are told that on his last admission he does indeed have a systolic murmur. So again I don't know how to interpret that. He also had an operation, one year prior to his terminal illness, for intussusception with an uneventful recovery. I hope that he had an urinalysis, at least if not preoperatively, that he did postoperatively, and I certainly would like to know what that showed.

In his family history there are two things that interest me. One is that a maternal great aunt died of dropsy—usually this means that there was edema, classically one would say that this was nephritis as opposed to heart disease, but there is no way of telling here. The other point is that a paternal

uncle died of kidney trouble, and for those of you who have been taking histories on our patients for any length of time, more often than not in a male this refers to trouble with the prostate rather than renal disease. Again, I don't know what this means, if anything.

In the physical examination, we are given some information this time: he was afebrile and had a remarkably rapid respiratory rate of 56/minute; despite this his pulse was only 94, and he was hypertensive. This is the first time we hear of any abnormality of his blood pressure. He was orthopneic, coughed up blood-tinged mucus, slight hemoptysis continued and he apparently had anasarca. The skin and mucous membranes were pale. The heart was enlarged, there was a soft systolic murmur, and there was evidence of congestive heart failure. The soft systolic murmur and the pallor make you wonder immediately if this is a hemic murmur—of course we have already mentioned whether the so-called "bad heart" had reference to this same murmur. So we have two fairly logical explanations for that murmur, neither of which, at the moment, can I lay too much stress upon. He did have hepatomegaly which was very large, actually, and he had lymphadenopathy in the anterior and posterior cervical chains only. We are not told about the quality of the heart sounds, and I feel this has some importance, particularly later when the heart further enlarges, and we are not told of the appearance of the fundi. Again, I think this is a very important point, but we will try to struggle without it.

Now, the laboratory data—the urinalysis revealed a 3-4+ proteinuria with red and white cells in the sediment. We are not told the specific gravity. He was markedly anemic with 6.5 gm.% hemoglobin, his white count was elevated at 15,000 and some, with 86% polys. The BUN was 100. Blood Mazzini was negative; serum protein and A/G ratio (we're not given the values) were certainly normal. Then, in a matter of some seven days, he goes steadily and progressively downhill, develops a gallop rhythm, has some central nervous system manifestations, is treated with hypertonic solutions of glucose without perceptible effect, develops a pericardial friction rub, his heart increases markedly in size, and he expires. So, going on the basis of the information that we are given, I think it is quite abundantly clear that he dies in uremia, despite all attempts to correct the anemia and fluid and electrolyte imbalances. Also, this terminal illness represents the second episode of his symptoms, except for the gross hematuria, as we brought out. The first episode to me, demands the diagnosis of acute glomerulonephritis. I pointed out what data was not available, blood chemistries, urinalyses, level of the blood pressure, the appearance of the optic fundi or the treatment. Nevertheless, given this two line description of his three month illness, I think one has to accept that this is acute glomerulonephritis. If this is so, what variety of acute glomerulonephritis does it represent? I am talking now of the plain out and out acute glomerulonephritis vs. an acute exacerbation in the course of chronic glomerulonephritis. There are certain points that would be very helpful. If we knew of an antecedent infection, and if so whether this was roughly 14 days prior to the onset of his symptoms, or whether it was a very few days (say two or three) prior to the onset of symptoms, it would have been the differential value because acute glomerulonephritis occurs almost invariably two weeks following a streptococcal infection, whereas in acute exacerbation, it occurs simultaneously with the symptoms of the streptococcal infection or within a very few days. This would be very helpful data, of course. The previous episodes of tonsillitis were all apparently without symptoms suggesting renal involvement at that time.

It is important to make a differential diagnosis of whether this is acute nephritis, or an acute exacerbation—not so much in this individual as in others—because of the difference in prognosis. As you are all aware, roughly 90-95% of patients with acute nephritis go on to uncomplicated healing and are then free, singularly free, of subsequent attacks of acute nephritis. In other words, acute glomerulonephritis which heals, protects against recurrences. Therefore, this would suggest to me that the original lesion failed to heal and this boy rep-

resented one of the group of 5-10% who go on from acute nephritis into chronic glomerulonephritis, or else that the first episode described was indeed an acute exacerbation rather than the onset of nephritis. In other words, both these episodes could be classified as acute exacerbations in the course of chronic nephritis. Everything we have said about the onset of the first episode in relation to streptococcal infection would be applicable to the second episode and, again, we don't have the historical data.

The physical examination we have already gone into. He is obviously acutely and desperately ill. I can't say that he has Kussmaul breathing (the deep regular respirations of acidosis) because I think he is breathing too rapidly to have this type of breathing. Nevertheless, I do feel that he satisfies the clinical picture of early uremia with anasarca, suggesting cardiac failure and, in addition, he has the symptoms of central nervous system involvement with some comnolence and later on increasing lethargy.

In the laboratory field we have evidence of anemia, an elevation of the blood urea nitrogen, we have evidence of marked proteinuria and hematuria. Well, what doesn't fit with the picture of acute exacerbation in the course of chronic glomerulonephritis? First of all, he is bleeding from the lungs—he is having hemoptysis. This is difficult to explain. Of course, it might be pulmonary edema but, unfortunately, we are told he is raising blood-tinged mucus. This is not a characteristic finding in pulmonary edema. His white count is 15,000. This doesn't fit with the usual situation. His albumin and globulin partition and the total protein are normal. This, to me, does one main thing—it rules out the presence of nephrotic syndrome, in this individual. Everything else seems quite favorable for us to make the diagnosis of the nephrotic syndrome, but the absence of hypoalbuminemia to me rules it out. The adenopathy is limited to the anterior and posterior cervical chains and suggests more than anything else that the tonsillectomy didn't really stop the repeated episodes of pharyngitis but gave a different portal of entry for the streptococcus into this individual. That's about all I make of that.

To get back to the bleeding from the lungs—another thing that occurred to me is the bleeding tendency that patients with uremia show. I'm not too familiar with it appearing in the sputum, but certainly it is not at all uncommon in the GI tract. These patients may have an increased prothrombin time, that is to say a prolonged prothrombin time which apparently is not the sole cause of the bleeding. We don't know his prothrombin time anyway. The elevation of the white count suggests that he has an infection. This is not unusual in uremia and since we have other signs pointing to the lungs we wonder if he doesn't have a pneumonia which is destructive locally in the lungs and causing him to have hemoptysis. We are also told that he has many WBC's in his urine. He could also have an infection in the kidney itself, accounting for the WBC's. He is afebrile. This doesn't fit with an infection of any consequence except that this is a desperately ill individual and, as you are all aware, they may not respond with a febrile response.

Lastly, the respirations of 56 suggest that he might have as part of his congestive heart failure, left ventricular failure with embarrassment of the pulmonary circuit and acute left ventricular failure, and also it would go with a significant infection in his lungs. Certainly the course is fulminant: he has been sick some 13 days prior to admission and he survives seven days in the hospital. His total course this second time is 20 days.

The BUN—one might say this isn't high enough for the patient to die in uremia. He isn't actually dying at the time we have a BUN of 100, we don't know what it was at the time he died, and anyway, he doesn't die because of the level of his BUN. The BUN itself is apparently not harmful.

He, clinically, must have had something that suggested hypertensive encephalopathy. He was treated with hypertonic glucose solutions without effect. This is supposed to be helpful in dehydrating the brain. We also know that patients with this syndrome of

acute nephritis who develop hypertensive encephalopathy, particularly if they go far enough to have convulsive seizures, have frequently gone into such marked congestive failure as a result of the violent exercise concerned in the fit that they die in acute failure. We also know that clinically he goes deeper and deeper into acidosis with his progressive renal failure. He fails to respond to digitalis in the face of what I am calling congestive heart failure. This is not unusual with the patient in uremia and so would be entirely within keeping there. It is also possible that he developed pericardial fluid and had tamponade. This is one of the things that occurred to me initially on the protocol, and again we are not told of the character of the heart sounds, which, of course, should be distant in the face of a significant amount of pericardial fluid, but we are told that he has a soft systolic murmur and unless this used to be a very loud one and which is now difficult to hear, this would seem to be against that possibility also. Certainly pericardial fluid wouldn't tend to respond to digitalis either. Then we are told that he gets a pericardial friction rub. This is common terminally in uremia, and that is one of the things we look for in the day to day examination of the patient with uremia. This time the listener is rewarded by hearing the pericardial rub. At first glance this is much in favor of his having a significant amount of pericardial fluid which ends in tamponade, but at the same time, more commonly than not, you do not hear a pericardial friction rub in the presence of a significant amount of fluid because the two surfaces of the pericardium are separated by the fluid. It is possible to hear this, particularly when the heart floats anteriorly on the fluid, so that the two surfaces of the pericardium are rubbing together at the base of the heart. That is possible here, but it seems to me somewhat doubtful. He may also have a cardiac lesion of some sort accounting for this murmur which is not explainable on the basis of chronic glomerulonephritis and, in other words, a separate diagnosis. If he does have this, I am unable from the data available, to make such a diagnosis. I cannot rule it out.

His age and sex are very compatible with first of all, acute nephritis followed by the course which we discussed; two episodes of acute exacerbation in the course of chronic nephritis are not at all unusual and would be quite in keeping here. It is unusual in other lesions which could give this picture terminally however, and to me strengthens the case for chronic nephritis. Remember that he is in relatively good health between these two acute phases. We don't know what his urine showed in the interim and obviously it is all important. At least clinically he is fairly well between these two episodes. During the time that he is symptomatically well and by the time of the second episode he is markedly anemic and has marked retention of BUN—all this develops in this relatively symptom-free two year interval. I feel fairly confident that the diagnosis is chronic glomerulonephritis.

Other things that come to mind were lupus erythematosus and periarteritis nodosa. First of all, lupus would be somewhat uncommon in this age group and sex. We would much prefer to have a young female. They don't usually present this type of picture and things that make you think of lupus are not present in this patient. Periarteritis is entirely possible, but again, the two episodes suggesting acute nephritis, I think, would be somewhat unusual. However, either of these is possible, I feel. I can't rule them out. The other one that comes to mind is polycystic kidneys presenting with gross hematuria. That would be fine except that this fellow has the clinical syndrome of acute nephritis, not just gross hematuria. You do not see this in polycystic renal disease. My diagnosis would be terminal uremia due to chronic glomerulonephritis with two episodes of acute exacerbation during the course of his chronic nephritis.

Dr. Jaques: Any questions for Doctor Colmore?

Q. *(student)* Can you rule out the presence of rheumatic heart disease?

Dr. Colmore: Well, as I have said, I can't rule it out. He may have practically any type of heart disease co-existing in addition to the renal lesion. With the data given I am not able to make a separate diagnosis of a heart lesion. I believe it is more

likely, actually, that the murmur is either (I hate to use the term) an "innocent" murmur, since it was present at the age of nine, or that it represents a hemic murmur.

Q. *(student)* Can you be sure that the RUQ mass was an enlarged liver?

Dr. Colmore: I think the hepatomegaly is entirely consistent with the degree of congestive heart failure that he had. He had massive anasarca anyway, and a tender liver, 8 cm. below the costal margin. We don't know anything about the liver function tests. We also don't know much about serum electrolytes or anything else in terms of the renal disease. One liver function test that is very important that we do have however, is a normal serum albumin.

Q. *(student)* Could the mass represent a polycystic kidney?

Dr. Colmore: Oh, I see what you mean —that this great mass called liver could be kidney. This is possible, but if so, the left kidney ought to be almost equally the size. I would expect this patient to have had a great deal of pain with renal cysts by the time he had gotten to the point of exitus from this disease. He could, of course, have enlargement of the liver with cystic involvement as well, and of the lung. As I say, this occurred to me, except that the course is not that of polycystic disease.

Q. *(student)* How do you account for the leukocytosis?

Dr. Colmore: As I said, he may have had an intercurrent infection. He has a white count of 15,000. He may well have intercurrent infection in the kidneys, as well. I don't know. I think that while these findings may not be those of chronic glomerulonephritis, the renal findings are certainly compatible, except for what you point out, with an acute nephritis or an acute exacerbation.

Q. How can you rule out the presence of subacute bacterial endocarditis?

Dr. Colmore: This is certainly possible if you ignore the history prior to 13 days before admission. I think if one takes into consideration the three month illness two years previously which is so similar to the present episode, it is hard to imagine that he could have such an overwhelming subacute bacterial endocarditis of three years duration.

Q. Why couldn't he have had a coarctation of the aorta?

Dr. Colmore: You mean coarctation of the aorta giving him hypertension which now ends in what is called "terminal kidney?" That is perfectly all right. Again I ask how can we explain the two episodes that to me are clinically acute nephritis. You don't see this in coarctation. Certainly a man with coarctation and hypertension can die in renal failure. If you ignore what is in between in terms of history it fits very nicely. They don't give his blood pressure in his lower extremities. So we can't rule it out on that basis.

Dr. Jaques: Dr. Colmore, before you leave, just a couple of questions I would like to ask you. If you feel this glomerulonephritis, do you still believe in Ellis' classification,[1] do you feel it is Type I or Type II? The second question is, What do you think of the present status of anti-rabbit-kidney-duck serum?

Dr. Colmore: I have no comment on either. I don't believe in Dr. Ellis' classification, so that gets me out of the first question and the anti-rabbit-kidney-duck serum is very interesting. I would like to hear your comments on that.

Pathological Discussion

Dr. Jaques: First of all, the autopsy findings. At autopsy, the heart was enlarged, weighing 375 gm. and revealed both right and left ventricular hypertophy. On microscopic examination this was borne out with the nuclei being more than 132 microns apart which is bona fide evidence of hypertrophy. There is no evidence of any rheumatic carditis or any other valvular lesions. However, there was a small amount of interstitial fibrosis. The lungs were heavy and at gross post they were described as being markedly wet. Microscopic examination revealed fibrin network projecting into the alveoli and showing fibroblastic ingrowth and a paucity of inflammatory cells, which is probably consistent with uremic pneu-

monitis. I should have mentioned there was about 125 cc. of pericardial fluid and there were numerous fibrinous adhesions, apparently producing the friction rub.

The spleen was slightly enlarged with prominent Malpighian corpuscles. It did show a fair amount of erythrocytophagocytosis. The liver was enlarged, weighing 1900 gm. and on microscopic examination revealed both acute and chronic passive congestion. There was no evidence of any cardiac cirrhosis.

The kidneys were both enlarged, weighing 185 gm. The capsule stripped with ease to reveal a finely granular external pale surface. On cut surface, there was diminution of thickness of the cortices with some obscuration of the corticomedullary demarcation. Microscopic examination revealed a rather diffuse glomerular change. This consisted of many areas of actually hyalinized glomeruli and in other areas there was hypercellularity of the glomeruli, increased lobulations, and apparently thickening of the basement membranes. A crecent formation was seen in other areas, and still in other areas there was seen a more acute episode. As one examined the kidneys even more carefully, in a few areas there was an interstitial infiltrate of polys which might account for the terminal white cells in the urine. To digress for a moment, very commonly, many of these patients with whatever the nature of the initial renal disease end up with acute pyelonephritis. This was particularly true in a series at Peter Bent Brigham Hospital which we had been following. These patients frequently end up with acute pyelo, even though they may have glomerulo of nephrosclerosis initially.

The adrenals were essentially normal and microscopically showed no evidence of any lipid depletion.

The gastrointestinal tract was likewise not remarkable and there was no evidence of any uremic colitis. Unfortunately, permission to examine the brain was not given. Doctor Colmore's pertinent question referable to the lamina dura, I am sorry to say, the prosector didn't look for the parathyroids either, so we have no evidence of any parathyroid disease. I think in essence, this case represents a pretty good case of glomerulonephritis which was essentially chronic, or was between subacute and chronic, but apparently with an acute exacerbation and also having some acute pyelo terminally. There's also evidence of uremia and uremic pericarditis and perhaps uremic pneumonitis. There was also evidence of some failure because of both left and right ventricular hypertrophy with some myocardial fibrosis as well. I should have mentioned thickening of the septa of the lungs, hemosiderin laden phagocytes and the Weiss-Parker changes one finds in passive congestion.

We might spend a couple of minutes on some of the newer concepts of glomerulonephritis especially from the experimental standpoint, they may sound sometimes a little bit erudite, but sometimes they will also add something to the overall understanding of this condition.

This is really not being facetious in asking about the anti-rabbit-kidney-duck serum. If you take a homogenate of rabbit's kidney and inject it into a duck and then take the serum from the duck and inject it into a rabbit, you can produce changes which are quite similar, histologically, to glomerulonephritis and even clinically many of these rabbits show a so-called nephrotoxic nephritis. It is usually more of a nephrotic type of syndrome. However, if you carry some of this work over into human beings, as has been recently done by Dixon[2] and by labeling anti-human globulin and placing it in the kidneys who die of glomerulonephritis and apply Coon's technique to it, you can fluoresce right at the basement membrane of the capillaries which would lend some credit to the idea at least that globulin plays a part in this and it is localized at the glomerular capillary level. If you use anti-human albumin, you get only a background fluorescence, so you get some pretty good evidence that something does happen at this level, whether it is antigen-antibody reaction, at least there is some evidence that this may occur. Even one can go further than this and actually do centrifugation of glomerular elements and again you find that the highest globulin content is in the basement membranes of the kidneys. Even further,

if one uses a still more refined technique, such as electron microscopy as it was done by the late Doctor Rinehart[3] in San Francisco, and a few other people more recently, one finds that there are rather profound changes in the glomeruli which frequently are not obvious to the so-called light microscopist. This consists of a proliferation of epithelial cells which you certainly see by light microscopy. But one finds instead of having little feet, these epithelial cells have feet growing on the basement membrane, they form a diffuse line against the basement membrane and the cytoplasm of these cells become quite vacuolated. Likewise, the basement membrane becomes thickened and shows vacuolization. I think that in the past, one of the most difficult things to explain was the fact that why do you get proteinuria in the presence of a thickened basement membrane. You think of a thick membrane and how is protein going to get through it? In the light of this, perhaps there is an act of transfer, perhaps across the basement membrane in these epithelial cells and into the capsular space of Bowman.

Dr. Colmore: I know Doctor Ellis feels that essentially these are two separate diseases and that there is recovery from one and not the other. I can't get the types straight in my own mind. I believe Type 1 is the one that does not progress to chronic. Is that correct? Eighty-four percent recover. I don't think there is any conclusive evidence either way actually as to whether Ellis is right or wrong. I would prefer to defer judgment until one can state definitely that this is true or isn't true. As far as I can tell clinically, I cannot at the time recognize the patient who has acute nephritis, I cannot differentiate the one who will recover completely from the one who will not. It is my belief that the one who does recover completely, and by this I mean no hematuria or albuminuria especially, six months later, let us say, I believe these patients never develop acute nephritis again. I think they are protected. However, whether this represents a different disease, or whether it just represents a different reaction on the part of the host to whatever causes acute nephritis, I don't know. I can't answer your question beyond that. I don't know what causes acute exacerbations anyway.

Q. *(student):* Is there a familial predilection for this condition?

Dr. Colmore: It is true that in some of these diseases, like acute nephritis or glomerulonephritis, some families tend to be more susceptible. I don't believe at all that there is something inherited which causes glomerulonephritis. No. Perhaps it's their genetic inheritance which makes them react to the streptococcus in this fashion, we think the streptococcus is the noxious agent in whatever antibody response winds up with damage to the kidneys. To me this is much like the inheritance of allergy. Certainly asthma isn't inherited as such, but apparently certain families do inherit a proclivity for allergic manifestations of different types. I think this is a similar mechanism.

Final Pathologic Diagnosis

Chronic glomerulonephritis.

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Results in

SPINAL CORD INJURIES

with Early Physical Medicine and Rehabilitation

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THE AUTHOR

After graduating from the Royal College of Physicians and Surgeons, British Isles, Herbert Kent, M.D., received his residency training in New York at Columbia University College of Physicians and Surgeons and at the Institute of Physical Medicine and Rehabilitation, Bellevue Medical Center, New York City.

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Today in Oklahoma, as elsewhere,[1] patients with spinal cord injuries can be given a new lease on life provided comprehensive Physical Medicine and Rehabilitation efforts are instituted early, consistently, and with consummation.[2] Our medical confreres and fellow citizens can thus take cognizance of a scientific cooperative triumph over what has been considered an impossible disability to treat. Of the patients with such disabilities, who normally would face invalidism and possible early demise, approximately eighty per cent can be trained to ambulate on crutches and of this number seventy per cent can be made employable again.[3] This restoration of independence is a hallmark of human engineering where profits may be measured in dignities as well as productive capacities.

Extent of Our Problem

Following upon World War I, spinal cord injury was not a rehabilitative problem. Almost all the patients died. But thanks today to antibiotic therapy, improved surgical methods, Physical Medicine and Rehabilitation, paraplegics of World War II have managed to live on successfully.[4, 5]

Accidental deaths resulting from motor cars in Oklahoma during 1957 totalled more than 600 and subsequent non-fatal injuries have been estimated at 3,000. Added to all other accidental disabilities, physicians must engender new concepts in medicine if they are to solve the growing hazard of our civilization. Lacking specific measures for the cure of many disabilities, we must circumvent these impasses through rehabilitation. Such restitution of physical and mental usefulness demands that adequate rehabilitation services be available.

It has been estimated by the Oklahoma Division of Vocational Rehabilitation that there is a need for the rehabilitation of 50,000 adults, but only about 1,500 persons are rehabilitated each year in this state because of lack of sufficient funds. Our more than 120 hospitals have a total bed capacity of at least 19,000 as reported by the State Board of Health statistics. Because of the insufficiency of adequate facilities and staff, it is doubtful whether more than a handful of beds can be found in civilian hospitals where such patients can be rehabilitated!

The patients in this series were treated at the University Hospitals, University of Oklahoma Medical Center. Other institutions known to have satisfactory rehabilitation services in Oklahoma are the Veterans Administration Hospital and Children's Convalescent Hospital. The latter facility is limited to those under 21 years of age. One also cannot fail to mention the excellent program at the Okmulgee Rehabilitation Center.

Patients Treated

A total of 16 patients were studied from January 1956 to January 1958. Many more were available but due to lack of bed facilities, they were forced to seek similar services elsewhere. All injuries sustained were traumatic in origin, usually the result of a motor car accident. Gunshot wounds, diving accidents, and falls accounted for the re-

TABLE I

	Patient	Level	Onset	Age	Urinary Infection	Bed Sores	Contractures	Cause	Results
CERVICAL	I. E.	4, 5	April 1957	25	+	+	+	Auto	Completely helpless breathing difficult
	R. M.	4, 5	July 1957	15	O	O	O	Diving	Wheelchair, Partial self-care e.g. feeding
	E. H.	5, 6	Aug. 1957	49	+	+	+	Auto	Wheelchair only No self-care
	J. M.	5, 6	June 1956	23	+	+	+	Diving	Homebound-Bed No self-care
	R. L.	5, 6	May 1957	17	O	O	O	Trampoline	Wheelchair, Partial self-care e.g. feeding
	W. M.	5, 6	Jan. 1956	20	O	O	O	Auto	Braces/crutches — Ambulatory—Self-care
	W. B.	5, 6	June 1954	19	+	+	+	Auto	Homebound wheelchair /bed Partial self-care
	W. K.	6	June 1957	40	O	O	O	Fell from window	Braces/crutches Ambulatory
	B. E.	6, 7	Nov. 1956	63	+	O	O	Auto	Braces/crutches— Self-care—Ambulatory
	E. M.	6, 7	May 1957	44	+	O	O	Auto	Wheelchair, Partial self-care e.g. feeding
THORACIC	C. K.	2, 3 4, 5	Oct. 1955	14	O	O	O	Motorcycle	Braces/crutches Ambulatory
	F. M.	3, 4	June 1952	18	+	+	+	Gun Shot	Wheelchair, Partial self-care
	V. D.	3, 4	Aug. 1957	21	O	O	O	Auto	Wheelchair—Braces & crutches—Ambulatory
	J. M.	12	Nov. 1957	13	O	O	O	Gun Shot	Crutches—Ambulatory Self-care
	R. B.	12	Oct. 1957	44	O	O	O	Drunk fell down stairs	Braces/crutches Ambulatory
LUMBAR	J. P.	2, 3	Jan. 1957	28	O	O	O	Auto	Braces/crutches Ambulatory

Series of patients treated with cord levels and complications

mainder in this series.

Table I indicates the 16 patients and results obtained. These cases were seen at the University Hospitals on consultation and, following evaluation, programs of Physical Medicine and Rehabilitation were prescribed. There were ten patients with injuries to the spinal cord in the cervical region—seven male and two female. Their ages ranged from 15 to 63 years. Patients with thoracic level lesions totaled five of whom two were female and three male. Their ages varied from 13 to 44 years. Only one patient was seen with a spinal cord injury in the lumbar region. He was 28 years of age.

For simplicity, complications have been broken down into three categories: genitourinary infection, decubiti, and contractures. Frequently in patients with genitourinary infection calculi have developed in the bladder, ureter or kidney pelves. These stones subsequently had to be removed surgically. As was to be expected, bed sores were evident in those with long standing injuries, particularly when the trauma occurred in the cervical portion of the spinal cord. Contractures were more common in the patients having a relatively old disability. One individual with a thoracic level injury showed moderate contractures which was attributed to continued positioning in a wheel chair.

The causes of the injury were as follows:

motor car—9; diving accidents—2; gunshot wounds of the spine—2; trampoline—1; falls—2. The results of treatment were related for the most part to the duration of injury. Ensuing complications, especially those found in the older cases, were found to be due to negligible and interrupted Physical Medicine and Rehabilitation. Of the 16 patients treated from a state of complete helplessness, all but one achieved a significant therapeutic goal. Seven progressed to the stage where they could propel wheel chairs themselves. Eight patients became ambulatory on braces and crutches. Three were able to assist in some degree with their self-care activities, e.g., feeding, toileting, and etc. Only one patient with a cervical lesion at the level of C.4-5 remained completely disabled. This patient, a female, was only kept alive by the efforts of the rehabilitation team. Her complications involved: impaired vital capacity, numerous episodes of urinary infection, bed sores, contractures, and marked muscle spasms sufficient to cause her to be thrown off her frame unless restrained.

Comment on Results

The goals these patients were able to attain is a valuable estimation of the functional potential possible for a later social and vocational life. Being ambulatory with the aid of braces and crutches signified independent living within a household and outdoors as a rule. If a disabled paraplegic is not homebound and has modern hand controls on his automobile, he can qualify for selective employment. These acquired skills may be considered a yardstick for successful therapy.

It is to be noted that only three patients with cervical cord lesions or 30 per cent were able to achieve ambulation. This would indicate, in these cases, that some cord elements became functional since the triceps, flexor and extensors of the fingers are a necessary minimum for stabilizing the elbow in the use of crutches. These muscle groups generally are innervated from above the seventh cervical level.

In the thoracic transection group, four out of five or 80 per cent became ambulatory on braces and/or crutches. The fifth patient demonstrated the consequence of inadequate and late therapy followed by urinary infection, bed sores and contractures. For despite the fact that a wheel chair existence was acquired, in terms of maximum rehabilitation, the case reveals only partial success for our efforts.

Likewise, the patient (E.H.) with a C.5-6 level lesion and a wheel chair achievement our results cannot be construed as being notable despite the recent origin of injury.

Patients with transections in the lumbar region are not usually "difficult" to rehabilitate. With strong upper limb muscles, fully innervated abdominals and good stabilization of the back most patients can be trained to develop a good gait with braces and crutches.

In summary, it can be stated that of the patients given early and sustained comprehensive rehabilitation services, more than 67 per cent in our series demonstrated satisfactory results.

Basic Principles of Rehabilitation Employed

As an elementary consideration, good medical and nursing care is vital to the success of treatment. However, it is essential that the following management be stressed repeatedly since the prognosis for life and rehabilitation is intimately bound with early goals.

1. *Genito-urinary Tract*—Infection and subsequent bladder-bowel control, depend upon prodigious efforts by the nursing staff and urologist. A Foley catheter changed regularly every seven to ten days, tidal or other drainage measures for maintenance of bladder capacity and a bladder-bowel training program will obviate many setbacks. The bladder may be trained by a rigid 24-hour fluid schedule with two hour periods for voiding and increasing to tolerance. Bowels can be regulated by enemas, glycerin suppositories or digital control. At least 70 per cent of "cord" bladders can thus be encouraged successfully. Systemic symptoms should be treated immediately and effectively. Although it is recognized that the presence of a catheter connotes infection, calculi are frequent, to be expected and should be carefully guarded against constantly. In addition, appropriate treatment of these should not be delayed unduly.

Nothing can "ground" a patient as quickly as a fulminating temperature nor be as destructive to motivation if repeated too often. Such delays with Physical Medicine and Rehabilitation schedules can result in weeks and months of bed fastness. Finally, inactivity encourages the development of decubiti, malnutrition, and contractures, triple hazards under any circumstances.

2. *Skin*—A Stryker Frame type bed is the most advantageous medium for preventing skin complications and assisting in nursing care. Patients in the early stages of management should be turned every two hours, day and night. The nurse must be on guard at all times for the slightest sign of skin irritation and pressure. A leaking catheter will not be long in contributing to decubitus ulceration. When an early bed sore is detected, prone nursing is to be stressed. Other appropriate measures for maintaining the hygiene of the skin should always be carried out, but relieving pressure over bony points is the most important phase of treatment. This can easily be accomplished with a Stryker Frame.

3. *Contractures* — Active and passive therapeutic exercises embodying all the principles of basic Physical Medicine will minimize the development of contractures.[6] Assistive aids, such as a functioning foot-board and braces contribute greatly to such prevention. Since muscle imbalance resulting from the paralysis is the underlying cause of muscle shortening, retraining measures employed in rehabilitation have been found to be most satisfactory.

Conclusion

Our study should make physicians understand more clearly that despite the fact that protracted medical care is necessary for patients with injuries of the spinal cord, if they are left untreated, hoped for goals, no matter how short of attainment become more formidable. Despair only lies in the effort that is necessary for success. As long as health agencies and professional personnel are inadequately informed, a realization that rehabilitation pays economic dividends is not possible. The spinal cord injured person who is not restored to society is ultimately a greater burden than is the person who has arthritis or neglected cancer. Though the complexities of treatment be great, it is not uni-dimensional. The treatment for spinal cord injuries demands a highly differentiated and integrated team of physicians, physical and occupational therapists and many other specially trained personnel. It has been said that a superior degree of professional orchestration emcompassing financial, capital, and coordinating leadership is demanded in rehabilitation. Finally, the bleak prognosis which medical men have often given to relatives of individuals so handicapped is disproven again. It is now time for us to take a second look. We cannot prescribe finality for anyone without delivering all that money and research can offer. Money spent intelligently is not capriciously wasted if it is accompanied by wise interest and direction. It is to be hoped that with leadership and unification of interests, we can fulfill our obligations to humanity.

Summary

The results of this study presented is primarily to accent optimism when a patient is seen who has sustained injury to the spinal cord. As automobile accidents and diving tragedies become more frequent and severe, the earlier a spinal cord injury is treated appropriately and expeditiously, the more effective can be our final achievement. Fortuitous thinking and planning by our communities for beds in which such patients can be treated, development of specialized Rehabilitaion Centers and early referral can materially contribute to successful rehabilitation in the majority of spinal cord injuries. Sixteen patients are discussed in some detail. Our recovery rate has been 67 per cent.

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Etiology of

ASEPTIC MENINGITIS*

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In 1925 Wallgren[1] introduced the term aseptic meningitis to designate an epidemic disease he believed to be an etiologic entity. To be included in this category the following criteria had to be met: 1. an acute onset with signs and symptoms of meningeal irritation; 2. spinal fluid pleocytosis; 3. spinal fluid sterile by the usual bacteriologic techniques; 4. comparatively short benign course without secondary complications; 5. absence of any indications of parameningeal disease (otitis, sinusitis, trauma, etc.) or systemic infection which might have meningitis as a complication (tuberculosis, poliomyelitis, mumps, typhoid, etc.); 6. absence in the community of an epidemic disease that might be associated with meningitis.

In the years that followed it become quite apparent that aseptic meningitis was not a specific disease but rather a syndrome associated with a large number of diseases. Wallgren was cognizant in 1925 of the similarity of the clinical features to the meningeal symptoms of tuberculous meningitis, poliomyelitis, epidemic encephalitis, mumps, syphilis, Weil's disease and other systemic diseases. Subsequent experience has shown that a number of other diseases may at times simulate this syndrome. Most of the neurotropic viruses are potentially capable of producing aseptic meningitis. Thus, in an attempt to retain the usefulness of the term aseptic meningitis workers have gradually altered its meaning. When it became clear that many of the cases grouped in this category represented complications of systemic infection such as those caused by mumps, poliovirus and others, Wallgren's fifth and sixth criteria were dropped. Since many "typical" cases do not have a short benign course, his fourth criterion has often been overlooked. Most investigators now consider aseptic meningitis as a syndrome characterized by the acute onset of signs and symptoms of meningeal irritation in which the spinal fluid is sterile by the usual bacteriologic techniques and has an abnormally increased cellular content usually predominantly lymphocytic.

The causes of aseptic meningitis are so numerous that a complete discussion of the problem is impossible within a presentation of this type. Since the most common causes of aseptic meningitis are infectious ones,

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especially those of a viral etiology, and since such significant advances in our understanding of these diseases have been made in the last few years, this communication will be limited to a discussion of these conditions.

Etiology

The central nervous system and its menınges may react in an identical fashion to a vide variety of infectious and non-infectious nsults. Table 1 outlines the numerous and liverse disease processes which may proluce aseptic meningitis. Viral infections nake up the largest etiologic group.

Clinical Picture

In the early stages the clinical features of ıseptic meningitis are usualy non-specific ınd include fever, vomiting, irritability, headache, and signs of meningeal irritation. Differentiation on clinical grounds alone is ısually impossible. The following case report is a typical example:

> J. B., a seven year old white male was well until four days before admission when he developed fever, up to 101° F, nausea and malaise. He was seen by his family physician who noted mild inflammation of the pharynx and administered an injection of penicillin. There was no improvement and he began to exhibit drowsiness, increasing fever and headache. His physician noted stiffness of his neck but no other localizing neurologic symptoms. The patient was then referred to this hospital for further diagnosis and treatment. Examination on admission revealed a drowsy, acutely ill child in no distress. Examination was otherwise not remarkable except for signs of meningeal irritation.
>
> The leukocyte count was 8,900/cmm. Examination of the spinal fluid revealed 132 leukocytes/cmm., 94% of which were lymphocytes, a normal sugar and slight elevation of the protein content. The direct smear revealed no bacteria and all bacterial cultures were sterile.

In any given instance the etiology may become clear as the clinical course unfolds with the appearance of pathognomonic clinical, laboratory, or epidemiologic information.[12] Pathognomonic signs which may clarify the etiology usually appear in the next few days, if they do at all, and include: 1. clinical evidence of mumps such as parotid swelling, orchitis, and pancreatitis; 2. changes in reflexes, sensory disturbances, disturbances of mood and affect indicative of arthropodborne encephalitides; 3. flaccid paralysis without sensory changes suggesting poliomyelitis; 4. roentgenographic pulmonary changes and positive tuberculin test indicative of tuberculosis; 5. clinical and laboratory evidence of leptopirosis (jaundice, hematuria, albuminuria); 6. historical, clinical, and laboratory evidence of inadequately treated bacterial meningitis.

But more often than not these diagnostically helpful signs do not appear. The picture is most commonly one of improvement over the next few days with no residual findings except possible mild stiffness of various muscles groups. In such cases it is only by appropriate laboratory procedures that a specific etiologic diagnosis can be made. During the last few years new and improved laboratory diagnostic methods, particularly the development of tissue culture techniques, have helped greatly to clarify the etiology of aseptic meningitis through identification of the causative agent in many cases. It is imperative that specimens be collected properly and obtained at the correct chronologic stage of the disease. For virus isolation the stool is most commonly used; however, in certain diseases throat washings, spinal fluid or material from skin lesions are needed in order to recover the virus. Other laboratory diagnostic procedures for virus diseases include complement fixation, neutralization and hemagglutination tests. Immediately upon suspicion of any of the diseases that cause aseptic meningitis, serum for these serologic procedures must be obtained and stored in the deep freeze. This acute phase serum should be paired with convalescent specimens obtained two and four weeks after the initial one. Paired sera are necessary in order to compare the changes in antibody titer since most virus diseases do not show a rise in titer until two or more weeks after the onset of the infection.

Specific Etiologic Causes

Poliomyelitis: Because poliomyelitis has been covered so extensively in recent years it will not be discussed in detail here. The poliovirus is in all probability the commonest cause of aseptic meningitis. Clinical features of non-paralytic poliomyelitis are non-specific and accurate diagnosis by clinical features alone is not possible. Temporal and geographic relationships of some cases of aseptic meningitis to obvious paralytic poliomyelitis make it more likely that the former represent instances of non-paralytic poliomyelitis. It is equally true, however, that epidemics of other viral diseases that produce a similar non-paralytic illness may and frequently do co-exist with poliomyelitis in a community. Virologic investigations consistently confirm the diagnosis of poliomyelitis more frequently in cases of paralytic disease than in those classified as non-paralytic. Thus, an accurate diagnosis of non-paralytic poliomyelitis can be made only by isolation of the virus from the feces, by demonstration of a rise in the titer of neutralizing or complement-fixing antibodies or by both these means. Serologic procedures have proved disappointing when used alone for the diagnosis of poliomyelitis, since a considerable proportion of patients have demonstrated their maximal antibody titer by the time they come under the physician's care.

In years past it was common to consider virtually all cases of acute aseptic meningitis in which other pathognomonic signs did not apear as examples of non-paralytic poliomyelitis. However, it is apparent that this is incorrect; in fact other viral infections in a particular community at any one time may be a more common cause of aseptic meningitis than is the poliovirus.[25] The "new" type of poliovirus reported by Soviet scientists and designated as Russian Type 4 poliovirus has been shown to be Coxsackie virus, Type A 7.[31]

Mumps: For many years it has been known that neurologic complications may be associated with mumps. Until recent years this knowledge was limited to those cases that exhibited evident parotitis or by inference to cases epidemiologically related. In 1945 it was shown that the mumps virus could be cultivated in the chick embryo and that it could be detected by hemagglutination methods.[2, 3] Subsequently the agent was isolated from the spinal fluid of patients with mumps meningitis.[4] The development of complement fixation and hemagglutination-inhibiton techniques made it possible to study mumps infections with relative ease. These diagnostic tests make it possible to differentiate mumps from other types of parotid swelling.[23]

Considerable controversy has and still exists concerning the frequency with which meningocephalitis occurs as a complication of parotitis. Afzelius-Alm[5] in summarizing a number of studies concluded that about 55% of the patients with mumps parotitis have spinal fluid pleocytosis. It is likely that meningitis is more frequently associated with mump infections during childhood than during adult life.[24] Furthermore the frequency of meningeal involvement may vary from epidemic to epidemic as a result of variations in the neurotropic properties of the virus.

Mumps is undoubtedly one of the important causes of aseptic meningitis. Although the exact incidence is not known it is not uncommon that meningitis may be the only obvious features of mumps infection. Estimates as to its occurrence have varied from 5% to 30% of all mumps infections.[6] Adair and associates[7] reported that 14.1% of aseptic meningitis studied at the Walter Reed Army Medical Center were due to infection with the mumps virus. Afzelius-Alm[5] found an incidence of 8% among 76 cases in Scandinavia. In Louisiana two studies revealed an incidence of 9% and 15% repectively.[6] It may be concluded that mumps is the cause of approximately 10% of all the cases of aseptic meningitis of obscure etiology, the exact rate varying with the season, locale, and year. Some clinicians have the distinct impression that mumps meningitis without parotitis seems to occur more frequenty during the summer months.[8] Unless definite clinical involvement of other organs is present, a diagnosis of mumps meningitis can be made only by laboratory techniques.

Coxsackie Virus Infections: In 1948 Dalldorf and Sickles[9] reported the isolation of

the Coxsackie virus. Much information has accumulated regarding these agents and the illnesses they produce. The Coxsackie viruses are almost universal in distribution and man appears to be the primary natural host. Although human infection is exceedingly common, especially in childhood, overt manifestations of disease as with poliovirus probably occurs in only a small proportion. The Coxsackie virus may persist in the feces of the infected individual for weeks but may be found in the throat for only a brief period of time and rarely in the blood. Occasionally it has been possible to demonstrate the agent in affected muscle.

Twenty-four types of the Coxsackie virus are now recognized. They are divisible into two groups, A and B, by the nature of the disease and by the pathologic changes they induce in suckling mice. Nineteen types are included in Group A and five in Group B. Unfortunately only six types, including A-9 and all five types of Group B, regularly produce cytopathogenic changes in monkey kidney tissue cultures. Neutralizing antibodies are in general type-specific and there is no common complement-fixing antigen. Thus, serologic procedures for the diagnosis of human infections are of little practical use since it would be necessary to perform complement-fixing studies against 24 different Coxsackie antigens and the even more laborious task of doing neutralization tests in suckling mice. For these reasons the diagnosis depends on viral isolation with confirmation by serologic studies for the homologous type only. Coxsackie viruses have frequently been recovered both alone and co-existing with poliovirus in individuals ill during poliomyelitis epidemics and in addition have been found in healthy individuals as well as those sick with a wide range of clinical illnesses.[26] Just what role these viruses may play in the epidemiology of poliomyelitis is not clear. Despite these questions the Coxsackie viruses have been conclusively implicated as a cause of herpangina, pleurodynia, neonatal myocarditis and aseptic meningitis.

Isolation of the agent from the spinal fluid or nervous tissue of the diseased individual and accidental laboratory infection provide strong evidence that Group B Coxsackie viruses can produce aseptic meningitis. Several recent studies suggest that Group A Coxsackie viruses may be a cause of aseptic meningitis. Gear and co-workers[10] reported the isolation of Group A viruses from the spinal fluid of six patients with meningoencephalitis. If this finding is confirmed, there will be no reason to doubt the etiologic role of Group A Coxsackie viruses in aseptic meningitis.

The ECHO Viruses: Extensive use of tissue culture techniques in the study of viruses recoverable from human feces, particularly during the poliomyelitis vaccine field trials but also in many different laboratories, has yielded a number of new agents which are cytopathogenic in tissue culture. Originally known as "orphan viruses," they have been grouped together and classified as enteric cytopathogenic human orphan viruses (ECHO)*. Sixteen agents thus far have been included in this group. In 1955 Karzon and co-workers[11] studied a summer epidemic of "non-paralytic poliomyelitis" in New York state. All seven of the hospitalized patients as well as several of their family associates were shown to have an ECHO type 6 infection. They also isolated ten such agents from the spinal fluid of patients who became ill during a concurrent generalized outbreak of aseptic meningitis. Other workers who have presented evidence that outbreaks of aseptic meningitis are due to ECHO virus.[27, 28] In view of this recent information from several sources there can be little doubt of the etiologic relationship between certain of the ECHO viruses and the syndrome of aseptic meningitis. The frequency with which these viruses cause polio-like disease, particularly in non-epidemic circumstances, is as yet undetermined. It seems probable, however, that this group of agents together with the polioviruses, mumps and Coxsackie group will prove to be among the most important causes of aseptic meningitis.

Other Viral Diseases which Produce Aseptic Meningitis: When the virus that produces lymphocytic choriomeningitis

*The National Foundation for Infantile Paralysis, recognizing that the poliomyelitis, Coxsackie, and ECHO viruses all inhabit the alimentary tract as well as share other properties, has changed the name of its Committee on the ECHO Viruses to the Committee on the Enteroviruses.[21]

(LCM) was isolated, it was believed that the etiology of aseptic meningitis had been solved. Indeed, THE STANDARD NOMENCLATURE OF DISEASE listed acute aseptic meningitis and LCM as synonyms, a source of confusion as late as 1942.[13] Serologic surveys indicate that about 11% of persons in the United States have experienced infection with the LCM virus.[14] Obvious meningeal involvement must occur in only a small proportion of individuals infected, if this figure is an accuate index of the frequency of human infection with this agent. Clinical experience supports this. LCM, at least in the southern portion of this country, is a rare cause of aseptic meningitis.[6] In our experience[15] as well as that of others[6] this agent has not been isolated from individuals below the age of 10 years with aseptic meningitis.

For several years central nervous system involvement in primary herpes simplex infection has been known but was considered to be invaribly fatal. However in recent years it has been learned that infection with this agent may be followed by non-fatal meningoencephalitis of a relatively benign nature. This infection also is not a common cause of aseptic meningitis.[5, 6]

Of the numerous arthropod-borne encephalitides only St. Louis, eastern and western equine encephalitis are of importance in the United States. Although each has been primarily a regional problem, there is evidence of spread of these agents to other areas. While infection with the virus of eastern equine encephalitis is usually followed by a very severe illness, western and St. Louis encephalitis infections may vary

TABLE 1. Clinical Conditions Which May Produce the Aseptic Meningitis Syndrome. Modified from Steigman. (12)

CLINICAL CONDITIONS WHICH MAY PRODUCE THE ASEPTIC MENINGITIS SYNDROME

AGENT	DISEASE
A. Infections	Poliomyelitis, Mumps, Herpes
I. Viral	Simplex, Herpes Zoster, Coxsackie B.
a) Man to Man Transmission	Primary Atypical Pneumonia, Infectious Hepatitis, ECHO, Others(?)
b) Rodent to Man Transmission	Lymphocytic Choriomeningitis
c) Arthropod to Man Transmission	Arthropod-Borne Encephalitides Including Eastern, Western Equine and St. Louis
II. Presumed Viral	Infectious Mononucleosis, Infectious Lymphocytosis, Cat Scratch Fever
III. Spirochaetal	Leptospiral Infections, Syphilis
IV. Mycotic	Torulosis
V. Protozoal	Toxoplasmosis
VI. Helminthic	Trichinosis
VII. Bacterial	(1) Tuberculous Meningtitis (2) Very Early Bacterial Meningitis (3) Inadequately Treated Purulent Meningitis
B. Postinfectious and Postvaccinal	Measles, Rubella, Varicella, Mumps, Vaccinia, Variola; Post-Rabies and Post-Vaccinia Vaccination, Infectious Neuronitis
C. Noninfectious	
I. Meningeal Reaction from Neighboring Lesions	Sinusitis, Mastoiditis and Other Abscesses, Infiltrates, Hematomas, Thromboses in or Adjacent to CNS.
II. Toxins and Irritants	Lead, Arsenic, Bacterial, Intrathecal Injections Air, Serums, Antibiotics, Contrast Media
III. Allergy	
a) Medications	Serum Sickness Including That Due to Antibiotics
b) Prophylactic Injections	See B.
c) Other Allergens (?)	Seen Rarely in Association with Urticaria and Arthralgias
d) Tuberculosis	Presumably a Sensitivity Reaction Without Actual Infection of the Meninges

from clinically inapparent ones to serious meningoencephalitis. Olitzky and Casals[29] have published a comprehensive review of the arthropod-borne encephalitides.

The encephalomyecarditis virus may produce aseptic meningitis in man but the frequency is unknown at the present time. Aseptic meningitis may occasionally result from infections due to herpes zoster,[16] infectious hepatitis,[17] and lymphogranuloma venereum.[18]

Certain diseases of presumed viral etiology may be associated with the syndrome of aseptic meningitis and include primary atypical pneumonia,[19] infectious mononucleosis,[20] infectious lymphocytosis[21], and cat scratch disease.[22]

Although there are numerous other causes of aseptic meningitis (Table 1), purulent meningitis suppressed by inadequate antibacterial therapy and incipient tuberculous meningitis are the other most significant infectious causes of aseptic meningitis. This is especially true in childhood. When an immediate decision must be made as to which of these is present or in distinguishing these from viral causes of aseptic meningitis, the clinical history as to previous antibiotic therapy or contact with possible tuberculosis is most important. An elevated blood leukocyte count and a lowered spinal fluid sugar content are in favor of purulent or tuberculous meningitis. However, it may be necessary to treat the patient with a presumptive diagnosis of bacterial meningitis for a time until the picture is clear.

Another cause of aseptic meningitis that must be considered, especially in the southern states, is leptospiral infections. These infections accounted for 12 of 158 cases reported by Adair et al,[7] 12 of 239 cases in the experience of Meyer et al[32] and 2 of 60 in another series.[15]

Several different serogroups of leptospires may produce aseptic meningitis.[30]

Experiences Regarding the Etiology of Aseptic Meningitis

Considerable evidence has now accumulated concerning the etiology of aseptic meningitis. Investigations concerning this problem have proceeded in several laboratories, but space does not permit a review of all of these findings and only those from the experience of a few investigators will be cited. During one year in the Nashville, Tennessee area 60 cases of aseptic meningitis were studied. Of this number 16 were found by laboratory study to be due to non-paralytic poliomyelitis, 8 mumps, 2 leptospirosis, and 34 were classified at that time as due to unknown cause; however, it is likely that many of these were due to ECHO or Coxsackie virus infections but laboratory techniques for the study of these infections were not available at that time.[15]

In most studies a specific diagnosis can be arrived at in a larger proportion of patients with paralytic disease than in those with a clinical picture of aseptic meningitis or encephalitis.[32]

In Table 2 the results of stool isolation studies from patients with paralytic disease and with aseptic meningitis studied in Toronto and Stockholm are shown.[33, 34] It can be seen that in paralytic poliomyelitis occurring in Toronto poliovirus alone could be isolated from the stool in 83% of the cases. However, in Stockholm poliovirus was isolated from only 66% of the paralytic cases. In the Toronto study it was not uncommon to isolate poliovirus in association with Coxsackie or other viruses from the stools. Of those with aseptic meningitis poliovirus was isolated from 19% of the Toronto patients and 36% of those in Stockholm. It is readily apparent that Coxsackie and ECHO viruses are important etiologic agents of aseptic meningitis in these two series.

A marked variation in the types of virus isolated during different years in a particular community has been noted.[25] Recent evidence indicates that a paralytic disease resembling poliomyelitis may apparently be due to ECHO and Coxsackie virus infections.[25] Usually the weakness these patients manifest is relatively mild and patchy in distribution but more severe and persistent involvement may occur.[26] However, those with only mild weakness have usually continued to feel debilitated for many months and are not capable of returning to work or to school for prolonged periods.

Summary

Only a few years ago most cases of aseptic

TABLE 2. Virus Isolations from Stools of Patients with Poliomyelitis. Modified from Rhodes and Beale (27) and Svedmyr (33).

	PARALYTIC POLIOMYELITIS				NON-PARALYTIC POLIOMYELITIS (ASEPTIC MENINGITIS)			
	TORONTO*		STOCKHOLM**		TORONTO*		STOCKHOLM**	
TOTAL NO.	71		402		96		343	
	NO.	%	NO.	%	NO.	%	NO.	%
Poliovirus Only	59	83.1	264	65.7	11	11.5	125	36.4
Poliovirus + Coxsackie A	5	7			2	2.1		
Poliovirus + Coxsackie B	0				5	5.2		
Total Poliovirus	64	90.1	264	65.7	18	18.8	125	36.4
Coxsackie A Only	0		0		6	6.2	2	0.6
Coxsackie B Only	0		0		18	18.8	3	0.9
Total Coxsackie A	5	7	0		8	8.3	2	0.6
Total Coxsackie B	0		0		23	24.0	3	0.9
Neg. for Poliovirus or Coxsackie	7	9.9			43	44.8		
ECHO	0		2	0.5	11	11.5	42	12.2
Adenovirus			1	0.2	0		0	0

*Rhodes & Beale: reported 4/57

**Svedmyr: reported 4/57

meningitis were considered to be examples of non-paralytic poliomyelitis. The development of newer diagnostic laboratory approaches, particularly tissue culture techniques, and further knowledge of the epidemiology of these diseases have made it clear that there are many other causes of aseptic meningitis. Infections of a viral etiology are by far the most common and include those due to poliovirus, mumps, ECHO and Coxsackie viruses, as well as those due to as yet unidentified viral agents.

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800 N. E. 13th Street, Oklahoma City, Oklahoma

Primary Squamous Cell Carcinoma of the CORNEAL-SCLERAL LIMBUS

ROBERT T. DOOLEY, M.D.

Malignant lesions involving the cornea of the eye are of some interest due to their rarity. The lesion can arise from the bulbar or palpebral conjunctiva and rarely from the cornea itself but more commonly arises from the corneal-scleral limbus.[1] These epitheliomas usually arise from the superficial structures normally visible between the eyelids and are influenced by such external factors as dust, dryness and ultraviolet radiation.

THE AUTHOR

Robert T. Dooley, M.D. graduated from the University of Oklahoma School of Medicine in 1958. He is now an intern at the United States Naval Hospital, Chelsea, Massachusetts.

Case Report

An 83 year old retired white male farmer had noticed an enlarging growth on his right eye for four or five years. For about six months he had been unable to discern objects with this eye. The eye had been painful at times but one week prior to being seen he had suffered an acute attack of pain associated with marked redness and lacrimation. He was seen by Doctor J. W. Parrish of Seminole, Oklahoma who treated him symptomatically and then referred him to the University of Oklahoma Hospitals where he was first seen in the Out-Patient Department on 2-21-58. Examination of the eye revealed a flat, dull, grayish-pink mass which covered the entire cornea and limbus except for a small crescent-shaped area of the temporal portion. Many new conjunctival vessels supplied the mass. The conjunctiva and the lid margins were inflamed and the eye was painful on pressure. The remaining portion of the cornea was cloudy. Coincidental physical findings were an immature senile cataract of the left eye, a nonulcerating basal cell carcinoma of the skin of the left cheek and a hard, slightly moveable mass just posterior to the angle of the mandible on the left side which was nontender and not fixed to the overlying skin. Clinically this mass was thought to represent a mixed tumor of the parotid gland. A biopsy of the corneal lesion revealed sheets of epithelial cells which varied considerably in size and shape with many mitotic figures and was reported as a squamous cell carcinoma. On 3-14-58, under local anesthesia, the right eye was enucleated without difficulty. On examination of the specimen the mass previously described was noted to extend into the anterior chamber. The mass measured 1.8 cm. in diameter and 0.3 cm. in depth. On microscopic examination the surface epithelium of the cornea contained a focal area of epithelium showing moderate acanthosis consisting of atypical, large, hyperchromatic cells with irregular alignment. Beneath this area there were numerous irregular communicating strands of neoplastic cells. These cells were moderately anaplastic squamous epithelial cells exhibiting individual keratinization as well as typical pearl formation. The neoplastic tissue was accompanied by a moderate amount of myxomatous connective tissue stroma. The anaplastic tissue was fairly well limited to the cornea and anterior chamber but did not extend to the surrounding structures such as the bulbar conjunctiva, iris or ciliary body.

Discussion

The majority of reports in the literature have dealt with one or two cases, but Ash and Wilder[2] at the Armed Forces Institute of Pathology reported 93 cases of epithelial tumors involving the limbus. Of these patients, 83 were white and 10 were Negro. There were 78 males and 15 females. The highest incidence occurred in patients between the ages of 50 and 80 years. Seventeen of the 93 cases presented premalignant lesions (13 had leukoplakia and four had Bowen's epithelioma) and it is of some interest that 47 of the remaining 76 cases

showed similar changes at the periphery of the malignant lesions. Of the 48 carcinomas, 39 were of the squamous cell type, eight were papillary squamous cell, and there was only one basal cell lesion. Ash[3] subsequently reported on 68 squamous cell and three basal cell carcinomas of the limbus. Reese[1] reported the ratio of squamous cell to basal cell lesions as at least 10:1.

Reese[1] describes the gross appearance of the squamous cell carcinoma as a localized and elevated mass with a rather characteristic white appearance due to keratin content, which, when marked, gives the tumor a striking pearly-white color. Large nutrient conjunctival vessels are seen coursing toward the lesion. There is only a slight tendency for this tumor to extend deeply since resistance to its growth is encountered at Bowman's membrane. When the substantia propria is involved some resistance is set up by a barrier of embryonic connective tissue around the invading cells. Extension occurs by way of the lymphatic spaces between the layers of the substantia propria and thence to the canal of Schlemm. This tumor may ulcerate and become secondarily infected.

Basal cell epitheliomas have less predilection for the limbus. This lesion is flatter and spreads out more than does the squamous cell lesion. At the limbus this epithelioma appears as either a pink fleshy elevation or as a small gray raised area. As it spreads over the cornea it becomes vascularized and papillary in appearance. The extension of this tumor likewise is superficial across the cornea since Bowman's membrane offers resistance to its penetration into the stroma.

Other tumors may involve the cornea. Epibulbar sarcoma has some predilection for the limbus. A rather comprehensive list of tumors involving the cornea is that compiled by Thomas[4] which includes congenital, implantation and lymph cysts; lymphangioma; dermoid; teratoma; fibroma; ectopic lacrimal gland; granuloma; adenoma; nevus; pigmented tumors, and tumors associated with generalized diseases such as neurofibromatosis, Gaucher's disease and the lymphomas.

An adequate biopsy must be obtained before any type of treatment is contemplated. Formerly the standard treatment for epitheliomas of whatever size was enucleation. This radical approach seems no longer tenable unless the tumor has been neglected and has involved deeper structures of the eye. Current therapy for those tumors involving only the superficial structures of the eye is wide local excision. Removal of the tumor should include as much of the underlying stroma as can be obtained without incurring the danger of subsequent perforation. The site of removal should then be subjected to irradiation. Both squamous cell and basal cell carcinomas involving the cornea are quite sensitive to radiation and relatively small doses are effective in reducing the danger of recurrence.[4]

Summary

A case of squamous cell carcinoma arising from the conjunctiva and involving the cornea is presented. Gross and microscopic pathology is described. The literature is briefly reviewed and the treatment is discussed.

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ABSTRACTS

Encephalitis Accompanying Attenuated Rubeola

HARRIS D. RILEY, Jr.*

American Journal Diseases of Children 95: 270, March 1958

The value of gamma globulin in preventing or modifying measles has been clearly demonstrated. There is also considerable evidence to indicate that modified rubeola is a comparatively mild disease usually unaccompanied by significant complications. Only three cases of encephalitis following measles attenuated by gamma globulin have appeared in the literature. Two cases of encephalitis complicating rubeola attentuated by gamma globulin are reported. One, that of a child who died on the 36th hospital day with empyema, bronchopneumonia, perforation of the esophagus, and encephalitis, is apparently the first reported case with post-mortem confirmation of encephalitis, complication modified measles. The relationship of gastrointestinal lesions and central nervous system disease is reviewed.

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Objective Evaluation of Patients with Rheumatic Diseases IV. Comparison of the Diphenylamine Reaction (DPA) with Serum Glycoprotein And Seromucoid Levels

SHETLAR, M. R.* and PAYNE, R. W.**

J. Laboratory and Clinical Medicine 51: 588-591, 1958

The diphenylamine reaction of serum is currently assumed to be caused by the sialic acid found in the seromucoid fraction. It has been reported to have value as a means of evaluating clinical activity in rheumatic fever and rheumatoid arthritis. In this study, the diphenylamine reaction was compared with serum glycoprotein and with seromucoid determinations as a method for estimating the inflammatory activity in patients with rheumatoid arthritis. Inflammatory activity was graded clinically as previously described (J. Lab. Clin. Med. 48, 194, 1956). A significant correlation was found between DPA and clinical activity (correlation coefficient, 0.588). However, the correlation coefficient between serum glycoprotein or seromucoid hexose and clinical activity were much larger ($r = .891$ for glycoprotein; $r = .740$ for seromucoid).

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Olfactory Perception Thresholds in Hypogonadal Women: Changes Accompanying Administration of Androgen and Estrogen

ROBERT A. SCHNEIDER,* J. PAUL COSTILOE,** R. PALMER HOWARD,*** and STEWART WOLF.****

Journal of Clinical Endocrinology and Metabolism, 18: 379-390, April, 1958

Olfactory perception thresholds and nasal mucous membrane function were measured over prolonged periods in three hypogonadal females; in one of these subjects nitrogen and sodium balance were also studied. Observations were made during periods of estrogen therapy (equilin sulfate, Premarin, estradiol-17 alpha, 3-monosulfate), of androgen therapy (testosterone propionate and nortestosterone), and of placebo administration. Estrogenic and androgenic effects were ascertained by measuring urinary gonadotropin and 17-ketosteroid excretions, respectively. Olfactory acuity during periods of placebo administration was not significantly different from acuity measured over long periods in six healthy women with normal gonaadal function, but in the hypogonadal group there was a tendency toward pallor and swelling of the nasal membranes. Olfactory acuity increased significantly in two hypogonadal subjects while they were receiving estrogens, but this was not associated with significant changes in nasal function; throughout the study, their olfactory threshold values and corresponding urinary gonadotropin levels were correlated positively. In contrast, olfactory acuity decreased significantly in the third hypogonadal subject while she was receiving androgens, and there was a positive correlation between acuity and 17-ketosteroid excretion. During androgen therapy, this subject showed a modest increase in nasal swelling and secretions which might have contributed to the observed decrease in olfactory acuity. There was a positive correlation between nitrogen excretion and olfactory acuity, but there was no such correlation between sodium excretion and acuity. The mechanisms by which estrogens improve and androgens depress olfactory acuity in hypogonadal women remain obscure. However, there is a suggestion that local changes in the nasal membranes may contribute to these differences.

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Felty's Syndrome

W. K. ISHMAEL.*

From Progess in Arthritis 86-97, Grune & Stratton, Inc., 1958

1. The triad of adult rheumatoid arthritis, splenomegaly, and neutrophilic neutropenia, known as "Felty's syndrome," occurs but rarely. Its nosologic significance is unknown at this time, but from the standpoint of treatment, this syndrome is a separate entity.

2. It is proposed that if Felty's syndrome is a therapeutically distinct disease, its concept should be broadened to include thrombocytopenic purpura and primary "splenic" anemia, as well as neutropenia or any combination of these three cytopenias, whether or not the spleen is palpably enlarged.

3. Likewise, there is good evidence to show that systemic lupus erythematosus should be included as one of the diagnostic criteria of Felty's syndrome. There is also a possibility that thrombotic thrombocytopenic purpura, systemic scleroderma, polyarteritis nodosa, and dermatomyositis should also be considered as one of the diagnostic criteria.

4. Leukemia, lymphosarcoma, infections, cirrhosis, amyloid disease, and agranulocytosis should always be excluded in patients with a collagen disorder and pancytopenia, as they are known to produce a similar picture.

5. Splenectomy is the treatment of choice in Felty's syndrome unless conditions exist in the individual concerned which contraindicate this surgical procedure. There is evidence to show that this definitive treatment should not be unduly delayed.

6. Whole blood transfusions, chloroquine and hydroxychloroquine, antimicrobial agents, and the glucocorticoids have a place in the management of certain situations encountered in this disease.

7. It is hoped that consideration of Felty's syndrome will not be discarded until the casual interrelationship of disorders of the reticuloendothelial and ground substance systems has been resolved.

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BOOK REVIEW

In this section devoted to the University Medical Center, in addition to the features that have appeared before, we will review books written by members of the staff. In the interest of objectivity, it is our plan to present reviews which have appeared in other journals.

The following review is quoted from the British Journal, Lancet, *1:* 821, April 20, 1957. One of the authors of this book is Philip C. Johnson, Chief of the Radioisotope Service, VA Hospital, and Assistant Professor of Medicine, University of Oklahoma School of Medicine.

CLINICAL USE OF RADIOISOTOPES

William H. Beierwaltes, M.D., coordinator, clinical radio-isotope unit, University Hospital, Ann Arbor; **Philip C. Johnson, M.D.**, chief, radio-isotope unit, Veterans Administration Hospital, Universit of Oklahoma; **Arthur J. Solari, M.S.**, radiation physicist for clinical radio-isotope unit and Kresge research isotope unit, University Hospital, Ann Arbor. Philadelphia and London: W. B. Saunders. 1957. Pp. 456.

Written primarily for the doctor taking part in the development of a clinical radioisotope unit, this book gives a particularly clear account of the principles underlying the use and measurement of radioactive materials, which should be very valuable to the medical graduate, who may have only a very superficial knowledge of nuclear physics.

Most attention on the clinical side is rightly devoted to thyroid disorders and radioactive iodine, since this is undoubtedly the most important and popular use of an isotope in hospital. Practical therapeutic aspects are well covered and for the most part the advantages and limitations of the new methods are adequately presented. Little is said about the more fundamental aspects of the nature of the action of radiation on the thyroid cells, and recent work on carcinoma of the thyroid in children resulting from irradiation of the neck is not included. In the chapter on diagnostic procedures no mention is made of the possible use of the short half-life ^{132}I, which considerably reduces the exposure of the gland to radiation.

After turning to the use of other radioactive isotopes in clinical investigation and treatment, the book deals with the biological effects of radiation. In concludes with the practical details of measuring radioactivity, and it even goes into the costs of investigations and the charges to be made to patients. In an American book the regulations regarding the supply of isotopes do not, of course, apply to laboratories in this country.

Doctors beginning work in a department using radioactive materials in clinical investigation will certainly find much to help them in this book.

The University of Oklahoma Graduate College

PHILIP E. SMITH, Sc.D.
Associate Dean, Graduate College

The function of the Graduate College within the University of Oklahoma Medical Center is to offer courses of study and opportunities for creative research leading to a Master of Science and/or Doctor of Philosophy degree. This function is separate and distinct from that of the Office of Postgraduate Medical Education, which is primarily concerned with refresher courses covering recent techniques and advances in various fields of medicine, and is specifically designed for practicing physicians. In the Graduate College, Medical Center, formal course work and research programs are pursued by qualified individuals who are interested in advanced training in medical allied fields.

A graduate program in connection with the School of Medicine has been in existence for a number of years. Master of Science degrees were being conferred by basic medical science departments prior to the transfer of those departments from the Norman campus to Oklahoma City (1928). In 1947 a separate graduate office was established in the Medical Center under the direction of an Associate Dean responsible to the Dean of the Graduate College of the University of Oklahoma, who is located on the Norman campus. The first designated Associate Dean of the Graduate College was Arthur A. Hellbaum, Ph.D., M.D., who served between the years 1947 and 1953. He was followed by James W. H. Smith, M.D., who directed the program between the years 1953-1956. The present Associate Dean has served since 1956.

The Graduate Faculty of the Medical Center as appointed by the Graduate Council of the University of Oklahoma, is constituted as follows: (1) the faculty in the basic medical science departments, (2) clinical faculty members who hold joint appointments in a basic medical science department, and (3) certain members of the Oklahoma Medical Research Foundation (notably in Biochemistry). This totals about 50 members.

Currently, degree programs exist in the basic medical science departments only (Anatomy, Biochemistry, Microbiology, Pathology, Pharmacology, Physiology, and Preventive Medicine and Public Health), although it is possible that within a short time certain of the clinical departments may make formal application to institute training for Master of Science degrees.

An important step taken in recent years which brought breadth and stature to the graduate program was the initiation in 1951 of training for the Doctor of Philosophy in Medical Science degree. It is of interest to note that with the inception of the Ph.D. program, the special courses and guidance of research projects were absorbed with existing faculty, i.e., there was no additional staff added to the Medical School faculty as a direct result of the graduate program. As

an outgrowth of the broad inter-departmental training offered for the Ph.D. in Medical Science, a need was felt for a degree program permitting more specialized training in individual departments. The first departments approved (1956) to offer such Ph.D. degrees were Biochemistry, and Preventive Medicine and Public Health.

Although the entrance grade requirement of students who wish to pursue a graduate program must be at least a "B," it is of interest to note that the enrollment has averaged between 40 and 50 students each semester. This number approximates the upper limit of students that can be absorbed into the existing facilities of the basic medical science departments. With this smaller number of students, each individual can work within the department of his major interest with adequate research facilities and maximum personal contact with his professors. Most students are research or teaching assistants, and as such constitute an integral part of the staff. The graduate faculty feels that a position of responsibility is an important facet of graduate training.

When the Ph.D. degree program was originally petitioned for, it was pointed out that there was a great need to train future basic medical science faculty and medically oriented research scientists. As an indication of how well the aims have been carried out, it should be noted that to date there have been 17 graduates who have received the Ph.D. degree in Medical Science since the first group graduated in 1955. Of this number, five have subsequently completed the M.D. degree, or are currently enrolled in medical schools under this program; six hold faculty appointments in Schools of Medicine in Oklahoma, Arkansas, Tennessee and Nebraska; two hold positions in indusdustry (pharmaceutical houses); three hold primary positions in Research Foundations (Oklahoma and Massachusetts), and one holds a position of teaching and research in a Liberal Arts College. During 1958 (June and August Commencements) it is expected that 12 Ph.D. degrees and eight M.S. degrees will be conferred upon students from the Medical Center.

Recent awardees of the Ph.D. degree from the University of Oklahoma School of Medicine and the Title of their dissertation include:

Name	Alfonso Joseph Strano
Department	Pathology
Title	"Studies on the Survival, Growth, and Differentiation of Embryonic Tissue Homotransplants"
Name	Charles Henry Farr
Department	Pharmacology
Title	"A Study of The 'Artificially-Induced' and 'Natural' Lupus Erythematosus Cell Phenomena"
Name	Vijayanand Sadanand Raut
Department	Biochemistry
Title	"The Reduction of C_{19} Keto-Steroids by Guinea Pig Tissue Homogenates"
Name	Kenneth Charles Back
Department	Pharmacology
Title	"A Study of the Depressor Aftereffects of Norepinephrine"
Name	Thomas Edward Wilson
Department	Microbiology
Title	"Factors Influencing Chloramphenicol Resistance of Micrococcus Pyogenes Var. Aureus"
Name	Robert Edward Bowling
Department	Microbiology
Title	"Permeability Alterations Associated With Chloramphenicol Resistance in Micrococcus Pyogenes var. Aureus"

The complete dissertations are available in the Medical School Library.

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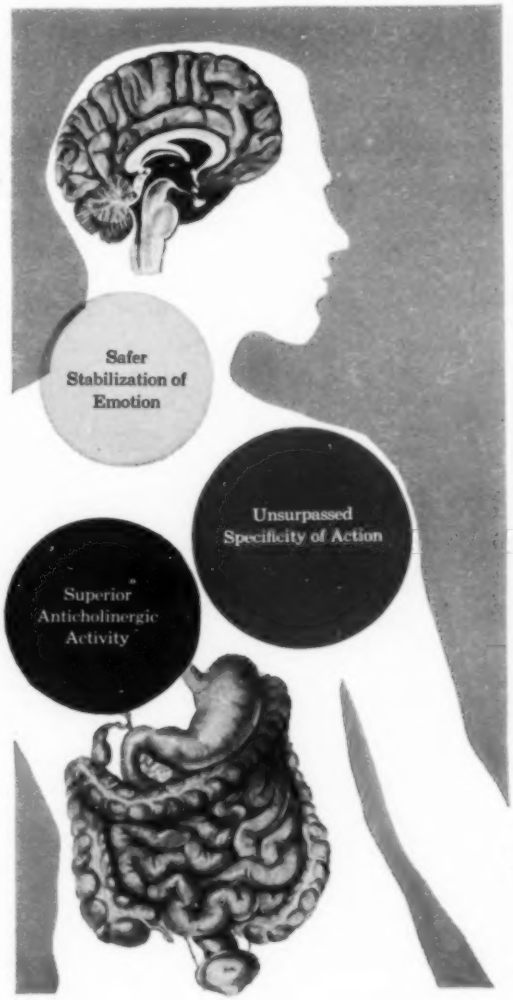

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PRESIDENT'S LETTER

How often each day do you advise a patient to get more exercise, diversion and relaxation? How often has it occured to you that you could use a copy of that same prescription?

It is all too easy for the physician to let the working hours of the day gradually increase until there is no time left except for the hurried meal and few hours sleep. With this state of being comes the loss of the friendly smile and the distasteful shortness of temper and tolerance. You may not realize what is happening to you but your patients and family do.

Technical skills in the practice of medicine are indispensable but much of the art of healing lies in the warm smile and kind sympathetic attitude. Scientific ability can go wanting if you as a doctor are not able to project cheerfulness and warm confidence to your distressed patients.

Let us take stock of ourselves and see how well we are maintaining our own physical and mental health. The days that pass without physical exercise or diversion are robbing us of the good health so necessary for our patients, our loved ones, and our own well being.

Summer is such a wonderful season of the year. Each day is an invitation to enjoy the beauties and wonders of the world so freely provided for us. Let us resolve to get out-of-doors, refresh our minds and bodies and return to the sick an example of our own prescription.

E. G. Kohler M.D.

President

Special Articles

This is the last of a series of articles designed to acquaint the medical profession with its role in the state civil defense program.

WHAT
Is Civil Defense and
WHO
Is Responsible?

JERRY RAGSDALE
Director of Public Relations
Oklahoma Civil Defense

A civil defense organization — federal, state, or local—cannot be operational and capable of functioning during times of disaster without the active participation of medical doctors.

Medical doctors serve two distinct purposes in relation to local civil defense organizations. (1) Professional capabilities resulting from their training and practice, and (2) Community respect or leadership qualities.

It is common knowledge — and common sense—that persons with professional standings, such as doctors of medicine, lawyers, and other recognized professions, are pointed out as community leaders. Exceptions are rarities.

For civil defense to be effective and active on all levels, this leadership quality is necessary. Oklahoma state civil defense files reveal that in cities and towns where members of the medical profession are active in local civil defense organization and training, the local CD program is making steady progress. And in towns where no member of the medical profession is active in CD planning—the program is at a virtual standstill. There are exceptions—but they are few.

From the professional standpoint, doctors of medicine are as important to civil defense as civil defense is important to the state and to the nation.

The main theme of civil defense is to relieve suffering, by proper treatment, caused by disasters—either natural or man made. To accomplish this purpose definitely requires doctors of medicine.

Like other major phases of civil defense, the health service must be an organized effort by all doctors in a community. It cannot be accomplished by a haphazard plan of operation to be put into effect in the event of a disaster.

Before a health service or medical disaster plan can be operational, it must be carefully planned, organized, and finally tested—for any possible bugs. The local civil defense plan must be known to all doctors and not just a few. And the medical plan must be kept current. New doctors moving into a community must receive a copy of the disaster plan. One uninformed person can cause havoc, regardless of the best laid, or most elaborate plans.

As medical plans are completed, they must become a part of the overall community civil defense plan. The medical service must know the plans of other services, and other services should be familiar with medical plans. An old cliche, "Always let the left hand know what the right hand is doing," is an appropriate description.

As medical plans are being prepared, a limited training program should be conducted. Physicians presently serving as advisors to the federal civil defense administration and state civil defense report that many medical doctors will require several hours of briefing and specialized lectures, or training, if they are to perform the necessary duties, during times of a large scale disaster, in an efficient

manner. This necessary training could be conducted as plans are being formulated.

Reports from members of the Oklahoma Medical Association to Oklahoma Civil Defense indicate that many physicians do not care for injuries in their normal every-day practice; and, therefore, there is a need for training in what civil defense terms "Emergency Medical Treatment."

Other findings reveal that many physicians are not familiar with "casualty sorting." Proper and prompt sorting of injured victims can be responsible for the saving of additional lives. Suggested priority schedules are listed in the civil defense publication, "Emergency Medical Treatment." Special courses in Mass Casualty Handling are conducted at several hospitals, including Walter Reed Hospital.

Disaster planning on local levels, emergency medical treatment, and casualty sorting are three of the major medical problems confronting civil defense today. They must be accomplished on all levels of operation.

In setting up training and preparing medical disaster plans, the responsible persons should always include related fields such as nurses, laboratory technicians, and other specialists associated with the medical profession.

This is the final article in the three-article series regarding the civil defense program in Oklahoma. The writer is aware that many questions are unanswered—and that the full story of civil defense is incomplete.

All civil defense publications describing the health service have been mailed to county and city civil defense directors, and doctors can obtain copies from them. If they are not available on local levels, the requests may be forwarded to OKLAHOMA CIVIL DEFENSE, P.O. Box 3365, OKLAHOMA CITY 5, OKLAHOMA. If you do not know the name of your local CD director, write the same address.

If you are not active in your local civil defense program—chances are good that you do not have an effective and workable civil defense or disaster organization in your hometown.

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Oklahoma Highschool Winner of the American Association of Physicians and Surgeons Essay Contest Presents Her Thoughts On . . .

The Advantages of Private Medical Care

ANN GOULD, Woodward, Oklahoma

Carl Sandburg wrote a poem entitled "Freedom is a Habit" in which he stated that men do not realize they have freedom until it is gone. We in America are especially proud of our heritage. Such documents as the Declaration of Independence, the Constitution, and the Bill of Rights are the foundations of our way of life.

The freedoms that we are privileged to have are evident as we carry out our daily activities. Among these are the freedoms of speech, religion, press, assembly, and trial by jury. Another freedom that is not usually considered is freedom of choice. This freedom of choice is one of the most important advantages of private medical care.

When a person becomes ill he goes to his physician, one whom he has selected as being best qualified to meet his particular needs. The patient knows that he is going to receive the best service possible from that physician. If hospitalization is required, the patient selects the hospital. The physician feels a personal concern for his patient. From the time the patient becomes ill till the time of his recovery, he receives the best medical care possible while preserving the physician-patient relationship. All of this is possible because of the private medical care program.

Americans are inclined to be boastful about their high standard of living which is created by the keen spirit of competition present in this country. Since the United States has military installations scattered over the face of this globe, many Americans have an opportunity to live in other countries. Not only do the servicemen have the opportunity to travel but many are joined by their wives and children.

When my father was stationed in England during the Korean Conflict, the other members of the family joined him. While there we had the opportunity to see the National Health Service, which is England's free medical care program, in action. The lady who worked for us was having difficulty with her hearing. The doctor she was registered with had neither the time nor the facilities at his disposal to fully investigate her hearing defect. She wanted to see a specialist but the only way she could do this was to be sent by the local doctor in the village. The local doctor thought that she was just imagining her difficulty and was only trying to take advantage of the free medical treatment. Finally after many weeks of worry and distress she was permitted to see the specialist and to receive the necessary treatment.

Actually the medical treatment is not free. The National Health Service is supported by funds from taxation. It is a plan under which the middle and upper classes help subsidize medical care for the low income groups.

This program provides an "assembly line" type of medical care. The family doctors, confined to a treadmill of daily calls and office hours, are losing their incentive and enthusiasm which access to diagnostic facilities and consultant opinion would provide.

The patient suffers because the family doctor and the specialist do not have the opportunity to work together. Therefore, they are not able to get a complete picture of the patient's condition. Because of this it is impossible to maintain a continuity of diagnosis, treatment, and after-care essential to restore patients to the highest level of health.

Instead of regarding the doctor as a friend and medical advisor, the patients tend to regard him as an "official" whose main duties are to satisfy demands for prescriptions and to make arrangements for X-rays and laboratory tests. This attitude destroys any beneficial doctor-patient relationships that have been formed and lowers the doctor's morale.

There is much public abuse of the National Health Service. The attitude of many people is that they deserve to get their money's worth and so they proceed to do this by taking up as much of the doctor's time as possible to the harm of someone waiting who may really need attention.

Eight years of experience in Britain have shown beyond a doubt that the practice of medicine by doctors and the control of medicine by politicians are incompatible.

There are four economic levels of people in the United States:

(1) Those who are financially well enough off to care for themselves under any conditions no matter how prolonged or costly the illness may be.

(2) Those who are financially well enough off to care for themselves under all conditions except for prolonged or costly illness.

(3) Those who can care for themselves under ordinary circumstances, but find it difficult to meet the cost of any illness.

(4) Those who are wholly dependent on the public welfare for even their food, clothing, and housing.

Those people in the first group are able at all times to meet their needs. They do not need a free medical care program. The indigent who compose the fourth group are dependent at all times upon the public welfare. County medical societies, in cooperation with state and county authorities, are taking an active part in providing medical care for indigent citizens. No program of health insurance is practical for this group since they are unable to purchase it. The American Medical Association believes that direct payment at the time of illness for this group is the most practicable and economic approach.

However, for those who are able to care for themselves under all conditions except prolonged or costly illness and for the medically indigent—those who cannot afford any medical treatment at all—some form of assistance is needed. This assistance is available in the form of voluntary medical care insurance of various types and of group hospitalization plans. These types of insurance provide funds to help meet medical costs.

Other types of protection which provide funds to pay medical bills include workmen's compensation, life insurance, personal accident insurance, accidental death and dismemberment, and liability insurance. In addition, various governmental programs provide for the military and their dependents, veterans, and persons in public institutions, among others.

The great majority of American people do want to pay their own way. Having the individual share in the cost of his illness prevents unnecessarily long hospital stays and abuses of the doctor's time.

Another aspect of private medical care is the advances and improvements that have been made in the field of medicine. With medical care in the hands of the medical profession, research is stimulated and more interest is shown by doctors in the better methods and techniques that have been developed rather than would be shown if the government controlled medicine.

Under private medical care the physician-patient relationship has been preserved, and the high standards for which the medical profession is noted are continued.

It has not been established by any available evidence that changing from private medical care to socialized medical care would in any way lower sickness and death rates.

America has always been noted for being a democratic nation. We have fought a Revolutionary War, a Civil War, two World Wars, and a Korean Conflict to prevent tyrannies from being formed. Are we to become victims of a tyranny which dictates the form of medical care we are to receive? We are proud of our freedom to decide for ourselves what we want to do. Socialism is

Continued on page 438

Medical News

Revised Hill-Burton Plan Announced

G. F. Mathews, M.D., Commissioner of Health, State Agency for the Federal-aid Hospital and Medical Facilities Construction Program (Hill-Burton), announced completion of the Revised State Plan for the fiscal year 1958-59. Action on formal adoption of the State Plan was taken by the State Hospital Advisory Council at a called meeting held at the State Department of Health offices on June 8, 1958.

The plan consists of an inventory of all existing facilities covered in the Hill-Burton Act, Public Law 725, 79th Congress and a program of construction designed to fulfill the unmet need for general, mental, tuberculosis and chronic disease hospitals, diagnostic and treatment centers, public health centers, rehabilitation centers and nursing homes. An annual revision is required and must be submitted to the Surgeon General, Public Health Service, for further and final approval in order for the State of Oklahoma to qualify for participation in the Federal program.

Essential elements of the State Plan, including the Methods of Administration of the State program, remain the same as in recent years with the exception of statistical data and hospital area priorities which must be altered annually to conform with changing conditions effecting bed need and utilization throughout the State.

A recent survey conducted by the Hospital Division, State Department of Health, concerning hospital and related health facilities in Oklahoma during 1957, is shown on this page.

The Construction Schedule for additional beds and facilities which may be constructed under the Hill-Burton program will be developed within the next few weeks and presented to the Hospital Advisory Council for their consideration and action. Qualifying projects will be placed on the schedule in relative priority order, however, the actual number of projects that can be picked up during 1958-59 depends upon the amount of funds appropriated by the present Congress.

This year is the earliest that the State Plan has been completed, demonstrating the efforts of the State Agency to participate in a generalized accelerated program to help alleviate economic conditions. It is expected that appropriations for the forthcoming year will at least equal the present level, however, there seems to be no indication that the Hill-Burton program will be used directly as an anti-recession instrument due to the complexity of hospital design and construction.

Since 1947, nearly $55 million in construction has been accomplished or is in process. Of this amount, almost $22 million has been furnished by the federal government.

A copy of the Revised State Plan and other information concerning the Hill-Burton program in Oklahoma will be readily available to any interested person at the State Department of Health offices.

CATEGORY	TOTAL ACCEPTABLE FACILITIES	TOTAL ACCEPTABLE BEDS	TOTAL BED NEED	TOTAL PATIENT DAYS
General Hospitals	165	9,436	10,710	1,950,425
Mental Hospitals	5	8,137	11,215	2,313,028
Tuberculosis Hospitals	5	909	1,190	185,916
Chronic Hospitals	16	591	2,243	125,002
Nursing Homes	104	1,997	8,972	X
Diagnostic Centers	16 Units	None	24 Units	None
Public Health Centers	28 Units	None	67 Units	None
Rehabilitation Centers	7 Units	None	8 Units	None

Doctor Brodie Wins New Distinguished Service Award

Bernard B. Brodie, pictured above, Chief, Laboratory of Chemical Pharmacology, National Heart Institute, National Institutes of health, was awarded the Distinguished Service Award of the Department of Health, Education, and Welfare by Secretary Marion B. Folsom in ceremonies held April 18. Doctor Brodie was cited for his development of a new field in medicine, Chemical Pharmacology, which through the application of biochemical methods to pharmacology has led to a basic understanding of drug action, a rational approach to drug therapy and the improvement and discovery of many medicinal agents. As a result of Doctor Brodie's personal research and direction and from the influence he has exerted in the field, the medicinal chemist may now tell in adance from a few physical characteristics of a drug, and in most instances just from looking at its structure, whether a drug will be absorbed from the stomach and/or intestines, will be excreted rapidly and whether it will rapidly penetrate the brain.

Doctor Brodie was also cited for his development of a number of therapeutic agents now in wide use and particularly for his development of the leading biochemical theory of the control mechanisms in the brain that integrate the autonomic nervous system into the primitive behavioral patterns. This latter work has led to an understanding of how the tranquilizing drugs affect the brain and has stimulated research in laboratories throughout the world working to uncover a basic understanding of how the brain functions.

The nomination by James Shannon, M.D., Director National Institute of Health, for distinguished service award in the Department of Health, Education and Welfare is as follows:

It is with personal satisfaction that I nominate Doctor Bernard B. Brodie, Chief of the Laboratory of Chemical Pharmacology, National Heart Institute, for a Distinguished Service Award in recognition of his personal value to research and for his responsibility for the development of a new field in medical science, that which has been designated Chemical Pharmacology. I had the pleasure of conducting research with Doctor Brodie before either of us were associated with the National Institutes on Health and invited him to the National Heart Institute in 1950 to head the laboratory of Chemical Pharmacology which was established for his direction. It has proven to be one of the most productive research areas of the NIH and has produced work of such significance and versatility that it has influenced research direction throughout the field of pharmacology and impressively in the fields of physiology, biochemistry and medicine.

Doctor Brodie's intuitive grasp of the importance and implication of basic findings that have been unrecognized by those who work in a single discipline has repeatedly resulted in the early development and application of basic work that might otherwise have been shelved until a more obvious direction in which its value lay was provided. His broad experience along with a productive imagination and breadth of interest permits him to cross disciplined lines and results in a value to research that is

singular in a research world that is increasingly characterized by specialization.

The basis for the field of Chemical Pharmacology was laid during the war years when, as the chemical member of a team of investigators, a systematic approach was made to certain urgent, practical and theoretical problems in the field of chemotherapy of malaria. This work is generally considered to contain classical examples of new approaches to therapy in the field of Pharmacology.

To meet the urgent need to evaluate the comparative value and efficacy of quinine and atabrine in the treatment of malaria, chemical methods for the measurement of these compounds in the body fluids and tissues were developed through a study of their absorption, distribution, excretion and localization in the tissues, and the use of this information to develop rational regimens of therapy. As a result of this work, it was possible to recommend to the Armed Forces as early as 1943 a rational method for the use atabrine and remove quinine as a medicinal of any importance in the treatment of malaria. The use of atabrine resulted in the removal of malaria from the field of tactical or strategic importance in the considerations of the armed forces.

Again, through the chemical work relating to absorption distribution and metabolic transformation of the antimalarials, it was possible to establish research protocols which permitted the serial study of wholly new antimalarial agents under conditions which were safe and which permitted a definitive appraisal of their potentialities on very limited numbers of patients and in a short period of time. The methodology and the experimental approaches evolved as a result of the availability of Doctor Brodie's basic chemical work were utilized not only by the clinicians of the Research Service at Goldwater Memorial Hospital but by all other clinical units in military and civilian installations which were concerned with the search for and appraisals of new antimalarial agents. As a result of the availability of these new tools, it was possible within the short period of two years to establish the currently used chloroquine as a most effective therapeutic agent for the suppression of malaria and the termination of the clinical attack together with the establishment of the 8-aminoquinolines as potential agents in the cure of vivax malaria.

Appreciating that the general concepts evolved in the malaria program were applicable to the broader field of therapy, Doctor Brodie's work following the war led to the emergence of the wholly new field which is known as Chemical Pharmacology. This emerged in part as the result of Doctor Brodie's personal efforts and in part as the result of his ability to utilize the services of others of diverse backgrounds. There was developed chemical methodology for the estimation of a large number of medicinal agents; an appreciation that the effectiveness or the lack of effectiveness of a therapeutic agent and the limitations and potentials of an active agent depended largely upon its ability to reach the site of action, to attain a given concentration at that site, and the duration which such a concentration is maintained.

At the same time Doctor Brodie was conducting his drug studies, he undertook the systematic study of intravenous anesthetics. He was able to define the factors which limited the utility of such compounds as pentothal and nembutal, and on the basis of these observations reopened the entire question of devising more effective intravenous anesthetics and ones without the peculiar limitations of these two drugs. Some 24 publications during this period were all significant, and some are considered to be classical.

As a result of the scientific content of these publications, Doctor Brodie attained national and internationl recognition. Such recognition came from discrete scientific data obtained in his systematic studies, but to a larger extent from the establishment of now concepts which now permit a more rational approach to the development and study of medicinal agents. It was quite apparent as result of work during the period from 1946-50 that Doctor Brodie had the capacity to direct the activities of a research team which incorporated organic chemists, pharmacologists, physiologists, and clinicians in the elucidation of theoretical and practical problems of therapy.

Because of his demonstrated ability to direct a multidiscipline approach to basic and medical problems, he was invited to join the Heart Institute. The high productivity and significance of the work becoming a member of the Staff of the Department of Health, Education and Welfare are proof that Doctor Brodie is an individual who has exercised very superior and very unusual leadership in his field of research. He has retained his position of leadership in the field of Clinical Pharmacology. However, his interests have led him far beyond his work in exploring the interaction of drugs with the body.

Below is a memorandum from Doctor James Watt, Director of the Heart Institute, discussing Doctor Brodie's more recent contributions.

Perhaps the most exciting research lead toward an understanding of one of the basic biochemical mechanisms controlling blood pressure and heart rate has developed in the past two years from Doctor Brodie's recognition of the importance and implication of the role of serotonin and norepinephrine in the brain. This has led to the leading biochemical theory of the control mechanism of the neuronal systems in the brain which integrate "automatic" functions and control the cardiovascular system as a subsidiary. This concept involves norepinephrine and serotonin as neurohumoral agents which serve to integrate autonomic, skeletomuscular and psychic functions in the central nervous system. An immediate practical result of Doctor Brodie's work in this area and the work from which his theory was developed has been an understanding of how the tranquilizing drugs affect the body with the result that other laboratories and pharmaceutical companies now have the understanding necessary for refinement and improvement of these drugs so that toxic effects may be avoided and their effectiveness increased. However, of far more importance than a possible explanation of the mechanism of hypertension or a refinement of the tranquilizers, his observations are stimulating research throughout the world by laboratories working to uncover a basic understanding of how the brain functions. Current studies in his laboratory on compounds which block the enzymes that metabolize serotonin and norepinephrine are leading to an understanding of how these inhibitors are effective in depressed mental conditions.

Doctor Brodie is one of the pioneers in the field of Chemical Pharmacology, an area which tries to explain the drug action and organ function in terms of biochemical events. His work on the distribution and metabolism of drugs has led to many basic pharmacological concepts which are now used in the development of new therapeutic agents and in the establishment of rational regimens of therapy. Because of his work pharamaceutical companies have departments that study this aspect of drugs which enables the Food and Drug Administration to pass on drugs with less personal investigation. Recently his group has elucidated the mechanism whereby drugs cross body membranes and as a result it is no longer necessary to guess whether a potential therapeutic agent will be absorbed from the gut, will penetrate usual cells or will penetrate the blood-brain barrier. Instead the information can be foretold from the physical properties of the drug. Recently his studies on the metabolism of drugs have led into a theory of biochemical evolution.

Doctor Brodie has broad interests and thinks conceptually so that he is able to coordinate the efforts of scientists working in a number of disciplines. His staff of more than 50 people include guest workers from all over the world who have come to work in his laboratory on funds obtained from other than the National Heart Institute. His intuitive ability to select young scientists of unusual promise and then provide them with the proper scientific environment for their development has resulted in the attraction to the National Institutes of Health of a continuous influx of scientific vigor and has contributed greatly to the level and quality of the productivity of his laboratory and that of the National Institutes of Health. His ability to grasp the importance and implication of basic findings that are too often unrecognized by those who work in a single discipline has repeatedly resulted in the early development and

application of basic work that might otherwise have been ignored until a more obvious direction in which its value lay was provided.

It perhaps should be pointed out here that the current winner of the Fleming Award from the Heart Institute, Doctor Sidney Udenfriend, conducted his early research under Doctor Brodie and made his early biochemical studies on serotonin while in the Laboratory of Chemical Pharmacology. What may prove to be the most significant application of Doctor Udenfriend's basic work on serotonin has arisen from Doctor Brodie's early recognition of the possible significance of serotonin as a control mechanism in the brain and the initiation of studies by Doctor Parkhurst Shore in his laboratory which have led to Doctor Brodie's theory of autonomic function, referred to above, as well as the brilliant demonstration of the action mechanism of the tranquilizing drugs.

A topic of current and vital interest to the country, that of training of scientific talent has been a special interest of Doctor Brodie's for some time. It has resulted in a cooperative arrangement with both George Washington Medical School and Georgetown Medical School whereby as Professorial Lecturer Doctor Brodie facilitates the training of a considerable number of his non-professional personnel who are also obtaining graduate degrees in science. The result has been the development and placement in his own laboratory, elsewhere at the National Institutes of Health, in universities and research centers of a number of most promising investigators.

A summary of the major contributions from Doctor Brodie's work and/or from his personal research direction follows. The influence and the stimulation to research exerted by Doctor Brodie's past and present work is too extensive to be measured. However, a partial list of lectures he has given and symposia in which he has participated plus his extensive bibliography of signifi-

our observation of the recognition his work has received and the influence which it exerts in the fields of pharmacology, biochem-

cant publications are attached to support

istry, physiology and medicine.

Discussion of the Major Contributions

1. *Biochemistry of Brain Function*

Studies by Doctor Brodie and his staff have produced evidence that the effects of tranquilizing drugs such as reserpine on the brain are due to their effect on the neurohormones serotonin and norepinephrine, which Doctor Brodie has postulated to be the regulators of the sympathetic and parasympathetic nervous systems. He and his staff have shown that reserpine produces its parasympathetic effects by release of serotonin which is normally bound almost completely to acceptor sites in the brain. The increase in free serotonin acts as a stimulant to the parasympathetic nervous system with its accompanying tranquilizing effects. Although reserpine is rapidly destroyed in the body, its beneficial effects are persistent since a considerable period of time is required for serotonin acceptor sites to be reformed in the brain. It appears that the balance between the sympathetic and parasympathetic nervous systems is maintained by the mutual antagonism of serotonin and norepinephrine. This is demonstrated by experimentally producing the tranquilizing effects from injection of chlorpromazine, which blocks the action of norepinephrine with its balancing effect on serotonin.

This experimental evidence obtained by Doctor Brodie is a biochemical parallel of the neuro-physiological observations made over 40 years ago by W. R. Hess that the autonomic, skeletomuscle and psychic functions of the body were integrated by two opposing neuronal systems in the brain stem (trophotropic and ergotropic). Doctor Brodie's work on the brain which provides a biochemical key to the control mechanism of the two systems is stimulating a great deal of research towards a better understanding of both normal and abnormal brain functioning.

2. *Drug Action in Terms of Membrane Permeability and Body Depots*

Doctor Brodie has provided the laws governing the passage of drugs across body membranes. Until his work, little consideration had been given to the problem of how a drug reached its receptor site; the development of drugs was primarily from observation of gross effects. Little consid-

eration of such factors as membrane permeability had been given by pharmacologists because it was believed that transport mechanisms were required to take substrates across cell surfaces and the complexity of the problem discouraged exploration. Operating on the simplifying assumption that drugs cross cell surfaces by virtue of their lipoid solubility and that they do not require transport mechanisms, Doctor Brodie has been able to demonstrate that the passage of a drug across a membrane is dependent on its dissociation constant and on the pH at the absorbing surface.

In addition to determining the factors which control the passage of drugs through cellular membranes, Doctor Brodie has learned a great deal about the nature and importance of various body depots which localize drugs in the body. For example, he has shown the importance of neutral fat deposits in determining the duration of action of Pentothal which has permitted its use as a common anesthetic with greater safety and effectiveness. He has shown the existence and significance of the binding of drugs to the nucleus of cells. Doctor Brodie has also demonstrated the binding of specificity drugs with the plasma proteins and the effect of this on the action of the drugs. For example, the high plasma binding of Phenylbutazone explains certain properties of the drug; the binding protects Phenylbutazone against metabolic alterations so that its metabolism is very slow in man which makes it possible to treat arthritic patients with single daily doses in contrast to therapy with salicylate which must be administered several times daily because of its rapid metabolism.

Doctor Brodie's studies on drug action make it possible for the medicinal chemist to tell in advance from a few physical characteristics of a drug, and in most instances just from looking at its structure, whether a drug will be absorbed from the stomach and/or intestines; will be excreted rapidly and whether it will rapidly penetrate the brain. As a result of his work in the field his knowledge is called upon constantly by the major pharmaceutical companies in the United States and Europe which send representatives to confer with him on problems in drug development.

3. *Drug Metabolism and Enzyme Systems*

Doctor Brodie's methodology and approach to the study of drug metabolism is now used by research workers throughout the world. In addition to initiating this type of study, Doctor Brodie and his staff have provided specific data on the fate in man for a wide variety of drugs including barbituates, anticoagulants, analgesics, antirheumatics, and hypotensive agents. Of particular importance, as a result of his studies on drug metabolism, Doctor Brodie has found that many different drugs and other foreign compounds are metabolized in the body by enzymes present in small particles within the cell called microsomes. He has observed that the enzyme system within the microsomes serve a major role in limiting the duration of action of drugs and that they possess an extraordinary degree on non-specificity toward foreign compounds without catalizing the metabolism of normal body substrates. His observations and the data provided from his laboratory have encouraged further research in his own laboratory and elsewhere on the nature of the microsome enzymes which may actually represent the basic defense mechanism on the part of the body to foreign compounds.

Doctor Brodie's interest in metabolism has caused him to initiate studies in his laboratory to follow the evolutionary development of defense mechanisms toward foreign compounds. To date comparative studies support his belief that many of the systems that metabolize foreign compounds arose in evolution in response to the need to conserve water. Aquatic animals ingest foreign compounds in food, but surrounded by an excess of water and possessing semipermeable gills or skins, easily disposed of the unwanted substances by passive diffusion. Accordingly, fish and certain amphibia do not possess oxidative mechanisms for drug metabolism. The enzyme systems that metabolize foreign compounds are present in higher animals to convert them to forms that the kidney can excrete. Such enzymes seem to appear on the scale of evolution only when animals have emigrated from the sea to land. Some interesting aspects of his studies show at a biochemical

level an apparent haphazard way in which mutations which had survival value for the organism enabled nature to answer the same chemical problem in a number of different ways. For example, insects, reptiles, and toads all convert foreign compounds to excretable products by quite different mechanisms.

4. *Development of Drugs by Doctor Brodie and His Staff Which Have Proven to Be of Clinical Value*

Acetylparaminophenol—a metabolite of acetanilid that is less toxic and equally good as an analgesic. It is now in general clinical use.

Procaine Amide—Developed from a urinary metabolite of procaine. It is generally used to stop heart arrhythmias.

G-28—A metabolite of aphenylbutazone analog. It is the most powerful uricosuric agent developed and will soon appear as an agent for chronic gout.

Phenylbutazone Metabolite—A metabolite of phenylbutazone which has proven to be the most potent of the non-steroid antirheumatic agents. It is now undergoing clinical trial.

Flexin Metabolite—A metabolite of Flexin, a centrally acting muscle relaxant. It is equally potent as Flexin but less toxic and easier to administer. Now undergoing clinical trial, it will soon be generally available for clinical use.

Red River Section of A.A.G.P. To Meet in September

The Fifth Annual meeting of the Red River Section, Oklahoma Chapter, of the American Academy of General Practice will be held at Lake Murray Lodge, Ardmore, on Sunday, September 7, 1958.

Plans for the one day meeting have been announced by Roger Reid, M.D., Ardmore. One speaker who has not been named yet, will speak on "Essentials of the Neurological Examination" and Rex Kenyon, M.D., Oklahoma City, will speak on "Evaluation, Use and Misuse of Common Laboratory Procedures."

A meeting of the Board of Directors of the Oklahoma Chapter of the A.A.G.P. will be held preceding the day long program.

International College of Surgeons Sets Two Graduate Courses

In response to requests, the United States Section of the International College of Surgeons has arranged with the faculty of the Cook County Graduate School of Medicine, Chicago, for the presentation of two postgraduate courses this year instead of one.

The first will be given July 7-19, and the second October 13-25. The course will be conducted under the supervision of the attending staff of Cook County Hospital, Chicago.

The course will include illustrated lectures, motion pictures, anatomy demonstrations, operative clinics, and practice surgery by the participants on anesthetized dogs. Consideration will be given not only to surgical techniques, surgical complications, and management of the surgical patient, but also to an intensive review of the basic sciences in relation to clinical surgery.

In addition to 20 hours of surgical anatomy on the cadaver, the program will include lectures and demonstrations on the following topics: gastric, pediatric, large and small bowel, anorectal, pancreatic, splenic, gallbladder, gynecologic, hernia, esophageal and thyroid surgery; physiology, intestinal obstruction, thoracic emergencies, cardiac arrest, hand injuries and infections, and abdominal injuries.

Additional information may be obtained from the Cook County Graduate School of Medicine, 707 South Wood Street, Chicago 12, or International College of Surgeons, 1516 Lake Shore Drive, Chicago 10.

Two Oklahoma Physicians Certified By American Board of Obstetrics And Gynecology

Jed E. Goldberg, M.D., Tulsa, and Brock R. Westbrook, Jr., M.D., Bartlesville have been certified by the American Board of Obstetrics and Gynecology. A total of 280 certifications were announced.

Applications for certification by the Board, new and reopened, Part 1, and requests for re-examination Part II are now being accepted. Deadline date for receipt

of applications is September 1, 1958 and all candidates are urged to make such application at the earliest possible date.

Application fees of $35.00, photographs, and lists of hospital admissions must accompany all applications. Candidates are requested to write to the office of the Secretary, Robert L. Faulkner, M.D., 2105 Adelbert Road, Cleveland 6, Ohio for a current Bulletin.

Southeastern Oklahoma Clinical Symposium

The McAlester Clinic Foundation and the University of Oklahoma School of Medicine, Department of Post Graduate Education will present the fourth Annual Southeastern Oklahoma Clinical Symposium in McAlester, Oklahoma, August 9-10, 1958.

The program will consist of scientific papers, clinical presentations, panel discussions, technical exhibits, and a cinema clinic. There will also be a special program for the ladies and a dinner dance.

Guest speakers for the two-day meeting and their subjects are: Harris D. Riley, Jr., M.D., University of Oklahoma School of Medicine, "Posthemorrhagic Anemia and Shock in Newborn" and "Management of Ureteral Injuries During Pelvic Surgery"; Jess E. Miller, M.D., Oklahoma City, "Urinary Tract Infections"; K. M. Earle, M.D., Galveston, Texas, "The Pathology of Involuntary Movements"; William R. Murphy, Jr., M.D., McAlester Clinic, "Aggressive Management of Abortions;" Phillip W. Brown, M.D., Mayo Clinic, Rochester, Minnesota, "Diseases and Tumors of the Small Intestine" and "Diseases of the Large Intestine"; Tom S. Gafford, M.D., "Ten Commandments For the Practice of Good Laboratory Medicine"; Dixon N. Burns, M.D., Tulsa, "Genital Tract Discharge"; and Robert A. Fouty, M.D., Eastern Oklahoma Tuberculosis Sanitarium, Talihina, Oklahoma.

Ten hours credit, category 1, has been approved by the American Academy of General Practice for this symposium. A complete program and reservations may be obtained by writing to Charles A. Miller, Business Manager, McAlester Clinic, Third and Seminole Streets, McAlester, Oklahoma.

A New Journal

Volume one, number one, "Diseases of the Colon and Rectum" was published by J. B Lippincott in January, 1958. Although of great moment to the specialist, this should be of general medical interest. The journal will be published bimonthly. It represents the cumulative efforts of, and is sponsored by, The American Protologic Society.

The Editor-in-chief, L. A. Buie, Sr., M. D. has been foremost in proctologic teaching and writing for many years. The Editorial and Advisory Board Members are pre-eminent in their respective specialties nationally and internationally. The journal will be an authoritative source of basic research and clinical information of diseases of the colon and rectum. Abstracts of current proctologic literature will be presented.—*Paul Vickers, M.D.*

Clinical Symposium Announced for October

Charles E. Wilbanks, M.D., Tulsa, has announced that the Tulsa County Chapter of the American Academy of General Practice has planned a Fall Clinical Symposium to be held on Thursday, October 9, 1958, at Tulsa. This symposium which will be held under the joint auspices of the Tulsa County Medical Society and Lederle Laboratories, will replace the regular Founder's Day program.

Guest speakers are to be selected from leading medical personalities of the United States. Subjects to be discussed will be: "Uses of Hypnosis in Medicine," "Emotional Problems in the Geriatric Patient," "A 10th Anniversary Reappraisal of Broad Spectrum Antibiotics," "Newer Concepts of Vascular Surgery," "Newer Steroids, Newer Uses," "Medico-Legal Problems in Private Practice," and in addition there will be a seventh paper presented at the mid-day luncheon on "Emotional Problems in Parents and Children."

Coming Meetings

AMERICAN COLLEGE OF OBSTETRICIANS AND GYNECOLOGISTS
DISTRICT VII
September 12-13, 1958
Jackson, Mississippi

District VII, American College of Obstetrics and Gynecologists, will meet in Jackson, Mississippi September 12 and 13. The program consisting of scientific papers, round tables and movies will be held in the King Edward Hotel. Further information may be obtained by writing to C. G. Sutherland, M.D., The Woman's Clinic, 918 North State Street, Jackson, 2, Mississippi.

ACADEMY OF PSYCHOSOMATIC MEDICINE
October 9-11 **New York, New York**

The fifth annual meeting of the Academy of Psychosomatic Medicine will be held October 9-11, 1958, at the Park Sheraton Hotel in New York City. The program will be devoted to the Psychosomatic Aspects of Internal Medicine and will include formal papers, panel discussions and luncheon conferences.

Information may be obtained from Bertram B. Moss, M.D., Suite 1035, 55 East Washington Street, Chicago 2, Illinois.

UNIVERSITY OF COLORADO MEDICAL CENTER
1958 Postgraduate Courses
Denver, Colorado

THE PREVENTION AND MANAGEMENT OF ATHLETIC INJURIES*

August 25, 26, 27, 1958—Denver, Colorado

Don H. O'Donoghue, M.D., Orthopedic Consultant, University of Oklahoma; Thomas B. Quigley, M.D., Assistant Clinical Professor of Surgery, Harvard Medical School; Joseph P. Dolan, Ph.D., Research Professor of Physical Education, North East Missouri State Teachers College; Kenneth Rawlinson, Chief Trainer, University of Oklahoma and Jack Rockwell, Chief Trainer, University of Colorado will be speakers for this program.

*For detailed program and further information, write to: The Office of Postgraduate Medical Education, The University of Colorado Medical Center, 4200 East Ninth Avenue, Denver 20, Colorado.

ST. JOSEPH'S CLINICS
July 31, August 1 and 2
Denver, Colorado

The Fifth Annual St. Joseph's Clinic will be held July 31, August 1 and 2 in Denver. The meetings will be closed this year but physicians who are interested in attending may secure invitations by writing to Mrs. Eugenia Hogue, St. Joseph's Hospital, 18th at Humboldt, Denver 18, Colorado.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY

Applications for certification (American Board of Obstetrics and Gynecology), new and reopened, Part I, and requests for re-examination Part II, are now being accepted. All candidates are urged to make such application at the earliest possible date. Deadline date for receipt of application is September 1, 1958. No applications can be accepted after that date.

Candidates for admission to the Examinations are required to submit with their application, an unbound 8½ x 11 typewritten list of all patients admitted to the hospitals where they practice, for the year preceding their application, or the year prior to their request for reopening of their application.

Current Bulletins outlining present requirements may be obtained by writing to the Secretary's office: Robert L. Faulkner, M.D., 2105 Adelbert Road, Cleveland 6, Ohio.

ANNUAL SOUTHEASTERN OKLAHOMA CLINICAL SYMPOSIUM
August 9-10, 1958
McAlester, Oklahoma

The Fourth Annual Southeastern Oklahoma Clinical Symposium will be held in McAlester, August 9-10, 1958. The Symposium will be presented by the McAlester Clinic Foundation and the University of Oklahoma School of Medicine, Department of Post Graduate Education and is approved for ten hours credit, category 1, by the American Academy of General Practice. Further information may be obtained by writing to Charles A. Miller, Business Manager, McAlester Clinic, Third and Seminole Streets, McAlester, Oklahoma.

The Achievements of Aristo

...in Skin Diseases: In a study of 26 patients with severe dermatoses, ARISTOCORT was proved to have potent anti-inflammatory and antipruritic properties, even at a dosage only ⅔ that of prednisone[1]... Striking affinity for skin and tremendous potency in controlling skin disease, including 50 cases of psoriasis, of which over 60% were reported as *markedly improved*[2]...absence of serious side effects specifically noted.[1,2,3]

...in Rheumatoid Arthritis: Impressive therapeutic effect in most cases of a group of 89 patients[4]... 6 mg. of ARISTOCORT corresponded in effect to 10 mg. of prednisone daily (in addition, gastric ulcer which developed during prednisone therapy in 2 cases disappeared during ARISTOCORT therapy).[5]

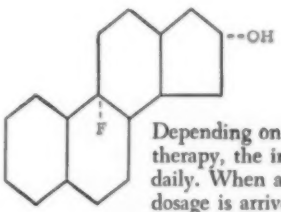
1. Rein, C. R., Fleischmajer, R., and Rosenthal, A. L.: J. A. M. A. *165*:1821, (Dec 7) 1957.
2. Shelley, W. B., and Pillsbury, D. M.: Personal Communication.
3. Sherwood, A., and Cooke, R. A.: Personal Communication.
4. Freyberg, R. H., Berntsen, C. A., and Hellman, L.: Paper presented at International Congress on Rheumatic Diseases, Toronto, June 25, 1957.
5. Hartung, E. F.: Personal Communication.
6. Schwartz, E.: Personal Communication.
7. Sherwood, A., and Cooke, R. A.: J. Allergy 28:97, 1957.
8. Hellman, L., Zumoff, B., Kretshmer, N., and Kramer, B.: Paper presented at Nephrosis Conference, Bethesda, Md., Oct. 26, 1957.
9. Ibid.: Personal Communication.
10. Barach, A. L.: Personal Communication.
11. Segal, M. S.: Personal Communication.
12. Cooke, R. A.: Personal Communication.
13. Dubois, E. L.: Personal Communication.

tocort®

Triamcinolone LEDERLE

...in Respiratory Allergies: "Good to excellent" results in 29 of 30 patients with chronic intractable bronchial asthma at an average daily dosage of only 7 mg.[6]... Average dosage of 6 mg. daily to control asthma and 2 to 6 mg. to control allergic rhinitis in a group of 42 patients, with an actual reduction of blood pressure in 12 of these.[7]

...in Other Conditions: Two failures, 4 partial remissions and 8 cases with complete disappearance of abnormal chemical findings lead to characterization of ARISTOCORT as possibly the most desirable steroid to date in treatment of the nephrotic syndrome.[8,9]... Prompt decrease in the cyanosis and dyspnea of pulmonary emphysema and fibrosis, with marked improvement in patients refractory to prednisone.[10,11,12]... Favorable response reported for 25 of 28 cases of disseminated lupus erythematosus.[13]



Depending on the acuteness and severity of the disease under therapy, the initial dosage of ARISTOCORT is usually from 8 to 20 mg. daily. When acute manifestations have subsided, maintenance dosage is arrived at gradually, usually by reducing the total daily dosage 2 mg. every 3 days until the smallest dosage has been reached which will suppress symptoms.

Comparative studies of patients changed to ARISTOCORT from prednisone indicate a dosage of ARISTOCORT lower by about ⅓ in rheumatoid arthritis, by ⅓ in allergic rhinitis and bronchial asthma, and by ⅓ to ½ in inflammatory and allergic skin diseases. With ARISTOCORT, no precautions are necessary in regard to dietary restriction of sodium or supplementation with potassium.

ARISTOCORT is available in 2 mg. scored tablets (pink), bottles of 30; and 4 mg. scored tablets (white), bottles of 30 and 100.

Lederle LEDERLE LABORATORIES DIVISION, AMERICAN CYANAMID COMPANY, PEARL RIVER, NEW YORK

Organization News

Health Economics Subject of Home Economics Workshop

Teaching of Health Economics was the subject of a workshop for home economists on the campus of the University of Oklahoma, June 23 - 27. The workshop was sponsored by the School of Home Economics, University of Oklahoma, the Okla-Tuberculosis Association, and the Extension Division, University of Oklahoma.

The object of this course was to explore with the home economists some of the economic factors involved in the attainment of optimum health for the individual and the community. In that the homemaker is charged with maintaining family health, it was the purpose of the workshop to study some of the basic principles involved in health economics so that this information can become a part of the home economics teaching program.

The workshop was developed as pilot study in the establishment of guide lines for the home economists in teaching high school and adult classes. Topics considered in the workshop included:

1. "Purchasing Medical Care," Guest Speaker: Mr. Tom Emel, Administrator, Oklahoma City Clinic;

2. "Selection of a Physician," Guest Speaker: Ben H. Nicholson, M.D., Editor, *The Journal of the Oklahoma State Medical Association;*

3. "Economic Factors in Public Health," Guest Speaker: Kirk T. Mosley, M.D., Professor of Preventive Medicine, University of Oklahoma School of Medicine;

4. "The Voluntary Health Agency in our Economy," Guest Speaker: Miss Alice I. Porter, Managing Director, Oklahoma Tuberculosis Association;

5. "Pre-payment of Medical Care," Guest Speaker, Mr. Ralph Bethel, Oklahoma Blue Cross-Blue Shield.

Mrs. Constance Cherry, Assistant Professor of Home Economics University of Oklahoma directed the workshop.

The Oklahoma Tuberculosis Association, through its county associations made a number of scholarships available to home economic teachers to attending the workshop.

Medicare Contract Renegotiated

Two Oklahoma physicians recently traveled to Washington for Medicare renegotiation meetings with Department of Defense officials. Walter E. Brown, M.D., Chairman of the OSMA Medicare Committee and Thomas C. Points, M.D., committee member, represented the Association during a two and one-half day discussion of certain changes proposed by Oklahoma physicians.

Windham Hill, Blue Shield Claims Supervisor, representing the fiscal agency, also participated in separate conferences regarding the financial administration of the Oklahoma program.

According to Doctor Brown, the group was reasonably successful in accomplishing the suggested variations and changes in the program. The Medicare Committee met in Tulsa on June 25 to receive Doctor Brown's report on the negotiations and authorized the OSMA executive office to accept bids on the printing of a new physician's manual.

Garfield-Kingfisher Society Holds "Recreation Day"

Members of the Garfield-Kingfisher County Medical Society played host to the doctors of northwest Oklahoma at an all day "Recreation Day" program of events at the Oakwood Country club on Monday, June 30.

Athletic events in the early afternoon started the day's activities. Golfing and swimming facilities were offered to those interested. For those favoring less strenuous activities, card games were organized.

Next on the agenda was a social hour, followed by dinner. A dinner speech was provided by Mr. H. B. Groh, Vice-President of the Southwestern Bell Telephone Company, Oklahoma City, who spoke on the subject, "Inside Russia." Mr. Groh recently returned from Russia where he was a guest of the government.

IN APPRECIATION for a particular incident of meritorious service, Dr. Fred Becker, left, of Altus is presented the Air Force Scroll of Appreciation by Col. George J. Krause, Altus Air Force Base commander. Presentation was made at a base-community relations council luncheon. (A.F. photo)

AF Scroll of Appreciation Presented To Altus Doctor

The Air Force Scroll of Appreciation for meritorious service was presented to Dr. Fred W. Becker, Altus physician, by Col. George J. Krause, base commander, at a meeting of the base-community relations council held in the Officers Club recently.

The Scroll was awarded to Doctor Becker for services rendered above and beyond the call of duty, in the treatment of a gun-shot wound suffered by an Altus Air Force Base staff sergeant.

The Scroll read: "In appreciation to Fred W. Becker for rendering meritorious service to the United States Air Force on 6 October 1957. Hurridly responding to an emergency at Olustee, Oklahoma, Doctor Becker quickly noted the critical condition of an air force member who had been injured by a gunshot explosion. In the finest traditions of the medical service, he accompanied the victim on the fifteen mile drive to Altus Air Force Base hospital, applying constant pressure to the wounded area to staunch the flow of blood. Seeing that an immediate transfusion was necessary, Doctor Becker, without thought for his own being, selfishly gave his own blood so that surgery could be performed. Doctor Becker's humanitarian regard for his fellow man and dedication to the tenents of his profession reflect great credit upon himself and have earned him the sincere appreciation of the United States Air Force." The scroll was signed by James H. Douglas, Secretary of the Air Force and General Thomas D. White, Chief of Staff of the Air Force.

In presenting the award, Colonel Krause stated, "In the military service, acts such as this, where an individual places devotion to duty above his own well-being are considered acts of heroism and awards are given in recognition of these acts. However, it is not often that we in the military have an opportunity to reward our civilian neighbors for their outstanding services to members of the Armed Forces, it is therefore, a distinct pleasure for me to have the honor of presenting this scroll to Doctor Becker, on behalf of the United States Air Force."

Ponca City Doctors Host Professional Men

Members of the Ponca City medical profession served as hosts for a Professional Men's Dinner held on June 10 at the Ponca City Country Club. This annual affair is the oldest inter-professional meeting in the state, having been interrupted only briefly during the second world war. Uniquely, the dinner is not limited to doctors and lawyers as are other similar functions, but also includes dentists, pharmacists and accountants.

J. T. Terry, M.D., President of the Kay-Noble County Medical Society, welcomed the group and introduced special guests for the evening which included E. C. Mohler, M.D., President of the O.S.M.A., John F. Burton, M.D., Past-President of the O.S.M.A., John E. McDonald, M.D., guest speaker and Messrs. Dick Graham and Don Blair of the association office.

Doctor McDonald, a past-president of the association and a current member of the A.M.A.'s Legislative Committee addressed the group on socialistic trends in national legislation and the adverse affects such fruits of a strong central government are having on individual initiative and free enterprise. Although his talk was principally centered around the dangerous trends in medical legislation, he also discussed the general socialistic philosophy that is plaguing the country.

New O.S.M.A. Directory Started

Work has begun at the O.S.M.A. office on a new membership directory, with the completion date set for November.

The publication of the directory entails a complete review of association membership records in order to make the proper corrections, additions and deletions of the names, addresses and specialties of some 1800 members. As in the past, the directory will also contain the revised constitution and by-laws of the association as well as informative material on various governmental health departments and voluntary health agencies.

Garfield County Initiates Service

Forty-two members of the Garfield County medical profession will kickoff the operation of a new service type Blue Shield contract on August 1. The new program, developed after considerable negotiation, will operate in lieu of the indemnity type Blue Shield program currently operating on a statewide basis.

A. F. Dougan, M.D., president of the medical society, and N. D. Helland, Tulsa, Director of the Oklahoma Blue Cross-Blue Shield Plans, said in a joint statement June 25 that participating Garfield county physicians have agreed to make available many of their services on a pre-payment basis without additional charges above a member's Blue Shield dues.

The physicians have established fees which they agree to accept in full payment for services performed for a Blue Shield member. Most non-routine services, including obstetrics but not post or pre-natal care, are covered.

Changes have also been made in the Blue Cross phase of the coverage, with a $25.00 deductible hospital program being offered as an option to the previous plan. A family enrollment, on a non-group basis will cost $9.70 per month for the deductible Blue Cross plus the service Blue Shield program. For the full hospital coverage plan and the service Blue Shield, a family enrollment will cost $11.00 per month. Coverage for an individual under the above arrangements will be $4.25 per month and $4.85 per month, respectively.

Advantages of . . .

Continued from page 424

simply another step toward communism. We cannot allow freedom to become a habit and in so doing lose the personal liberties we enjoy under private medical care!

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Doctor Mohler Announces 1958-59 Committees

E. C. Mohler, M.D., newly-installed President of the Oklahoma State Medical Association, has announced the following partial list of committee appointments for the 1958-59 tenure of his administration:

Committee on Medical Care Under UMWA

Tom S. Gafford, M.D., Muskogee
Robert Lowrey, M.D., Poteau
Wilkie D. Hoover, M.D., Tulsa
Kelley West, M.D., Oklahoma City
Fred D. Switzer, M.D., McAlester
Floyd T. Bartheld, M.D., McAlester
Carlton Smith, M.D., Henryetta

Committee on Rural and School Health

C. W. Arrendell, M.D., Ponca City, Chairman
Mark Holcomb, M.D., Enid
Ray B. Graybill, M.D., Ardmore
Paul O. Shackleford, M.D., Tulsa
George L. Lythcott, M.D., Oklahoma City

General Health Committee

J. Floyd Moorman, M.D., Oklahoma City, Chairman
L. G. Livingston, M.D., Cordell
Grady F. Mathews, M.D., Oklahoma City
Leslie Hamm, M.D., Lawton
Earl M. Lusk, M.D., Tulsa
T. C. Glasscock, M.D., Ponca City
E. K. Norfleet, M.D., Bristow
Frank Adelman, M.D., Enid
Ross Deputy, M.D., Clinton

Executive Committee

E. C. Mohler, M.D., Ponca City
A. T. Baker, M.D., Durant
Malcolm E. Phelps, M.D., El Reno
Francis R. First, M.D., Checotah
Wendell L. Smith, M.D., Tulsa
Joe L. Duer, M.D., Woodward
Johnny A. Blue, M.D., Oklahoma City

Cancer Committee

James W. Murphree, M.D., Ponca City, Chairman
Joe M. Parker, M.D., Oklahoma City
C. K. Holland, M.D., McAlester
John R. Records, M.D., Oklahoma City
Hays R. Yandell, M.D., Tulsa
Bruce R. Hinson, M.D., Enid

Insurance Committee

Ralph A. Smith, M.D., Oklahoma City, Chairman
Archie F. Dougan, M.D., Enid
C. E. Woodard, M.D., Drumright
Willard D. Holt, M.D., Altus
Ralph A. McGill, M.D., Tulsa
E. C. Yeary, M.D., Ponca City
Port Johnson, M.D., Muskogee
Curtis Berry, M.D., Norman

Public Policy Committee

J. R. Stacy, M.D., Oklahoma City, Chairman
G. R. Russell, M.D., Tulsa
Powell E. Fry, M.D., Stillwater
Robert Lowrey, M.D., Poteau
Charles E. Green, M.D., Lawton
E. H. Shuller, M.D., McAlester
Louis H. Ritzhaupt, M.D., Guthrie
James C. Amspacher, M.D., Oklahoma City
Clinton Gallaher, M.D., Shawnee
J. Hoyle Carlock, M.D., Ardmore
E. A. McGrew, M.D., Beaver
John E. McDonald, M.D., Tulsa

Advisory Committee to Woman's Auxiliary

C. E. Northcutt, M.D., Ponca City
R. Q. Goodwin, M.D., Oklahoma City
Hugh Perry, M.D., Tulsa

Physician's Advisory Committee to Oklahoma Medical Assistants Society

C. B. Dawson, M.D., Oklahoma City, Chairman
Robert Allen, M.D., Bartlesville
Charles E. Wilbanks, M.D., Tulsa

Medicare Committee

Walter E. Brown, M.D., Tulsa, Chairman
Charles E. Green, M.D., Lawton
David C. Ramsay, M.D., Ada
Thomas C. Points, M.D., Oklahoma City
Horton E. Hughes, M.D., Shawnee
Tom S. Gafford, M.D., Muskogee
Robert C. Lawson, M.D., Oklahoma City
William B. Renfrow, M.D., Oklahoma City
L. B. Word, M.D., Bartlesville

Medical Care for Recipients of Public Welfare

Mark R. Johnson, M.D., Oklahoma City, Chairman
Thomas E. Rhea, M.D., Idabel
Richard Burgtorf, M. D., Shattuck
R. M. Wadsworth, M.D., Tulsa
George H. Garrison, M.D., Oklahoma City
E. M. Gullatt, M.D., Ada
T. H. McCarley, M.D., McAlester

Committee on Health Care for Aged

Hayden H. Donahue, M.D., Oklahoma City, Chairman
Henry H. Turner, M.D., Oklahoma City
C. E. Bates, M.D., Sulphur
Leonard P. Eliel, M.D., Oklahoma City
Samuel C. Sheperd, M.D., Tulsa
J. R. Stacy, M.D., Oklahoma City
Mr. Paul Snelson, Oklahoma City, (Consultant)

Deaths

JOSEPH G. BRECO, M.D.
1877-1958

Joseph G. Breco, M.D., retired Ada physician, died in Corpus Christi, Texas, May 23. Born in Canada in 1877, Doctor Breco graduated from the Southern Methodist University Medical Department in 1905. He began his practice in Canton, Texas, coming to Stonewall, Oklahoma in 1906 and to Ada in 1915 where he remained until his retirement in 1945.

After living in California for ten years, he moved to Corpus Christi where he lived until his death.

Doctor Breco held both Life and Honorary Memberships in the Oklahoma State Medical Association.

JAMES I. PAYTE, M.D.
1896-1958

James I. Payte, M.D., Oklahoma City physician, died at his home May 27. Doctor Payte had practiced in Oklahoma City since receiving his medical degree.

Born in Sipe Springs, Texas in 1896, Doctor Payte came to Oklahoma City in 1928 and graduated from the University of Oklahoma School of Medicine in 1930. He served as a lieutenant commander in the navy during World War II.

Doctor Payte was a member of the Oklahoma County Medical Society, the Oklahoma State Medical Association and the American Medical Association.

Letter to The Editor

The recent report of the Ad Hoc Committee of the Surgeon General of the United States, after weighing the advantages and disadvantages of BCG vaccination, states: "It is believed, however, that the advantages of vaccination outweigh the disadvantages for tuberculin negative persons who are exposed to a definite risk of infection, especially if they cannot be retested frequently with tuberculin."

This Committee recommended BCG vaccination for those groups recommended by the American Trudeau Society, the American College of Chest Physicians, the American Medical Association, and the Medical Advisory Committee of Research Foundation.

The specific groups recommended for BCG vaccination by the American Trudeau Society are:

1. Doctors, medical students, and nurses who are exposed to tuberculosis;

2. All hospital and laboratory personnel whose work exposes them to contact with the bacillus of tuberculosis;

3. Individuals who are unavoidably exposed to infectious tuberculosis in the home;

4. Patients and employees in mental hospitals, prisons, and other custodial institutions in whom the incidence of tuberculosis is known to be high;

5. Children and certain adults considered to have inferior resistance and living in communities in which the tuberculosis mortality rate is unusually high.

There have been numerous inquiries from all parts of the United States as to where BCG vaccine may be obtained. In order to assist those interested, the following information is offered:

BCG vaccine may be obtained by any licensed physician in the United States and its territories by writing to the laboratories of Research Foundation and the University of Illinois, the only institutions licensed to produce and distribute BCG in this country. The address of Research Foundation is: 70 West Hubbard Street, Chicago 10, Illinois.

Sol Roy Rosenthal, M.D., Ph.D.
Medical Director, Research Foundation, and
Director, Institution for TB Research,
University of Illinois

25 YEARS AGO

Articles published in *The Journal* of the Oklahoma State Medical Association July, 1933.

The Woes to Which the Doctor Is Exposed

"Ordinarily, what is known as the Statute of Limitations runs one year in ordinary cases, but occasionally extraordinary cases occur and we have now one such case on hand. Thinking it over it seems that it is unjust to be called upon to defend a suit many, many, years old, where the witnesses to what occurred may have died, or moved away. However, that does not prevent the bringing of a certain type of suit.

In this particular instance the plaintiff, one Henderson, sustained a fracture twelve years ago; a physician was called and this physician apparently rendered the best service possible, taking into consideration the type of fracture of the forearm which occurred. Unfortunately the patient happened to be only six years of age at that time. Now upon reaching legal age he has filed suit against the physician alleging malpractice. The chances are very strong that he will obtain nothing for the physician called in every available, competent man in reach to assist him in treatment and advice as to the case.

Of course it is a very well known rule of law, that a minor may bring suit for an occurrence which occurred many years prior to the affair, within one year after attaining his majority. But it certainly seems to us very unjust that a physician may be called to answer such a suit.

As we have pointed out before, keep a record of everything—what was found, and everything that was done to combat it, all of which may prove invaluable in later years. On this account we urge every physician practicing medicine to keep a card (we keep one 5" x 8", and to that is often clipped other pages so that should any question arise in the future we have all the data at hand.)

This is a very positive protection and aid to us at all times. I simply pick up the card, read over the record, and know at once what happened at that time and what was done about it. We recommend this system to every physician.

In this connection it occurs to the writer that the physician should always retain the X-ray or a duplicate of it, for no one knows what disposition may be made of it, should it fall into the wrong hands."

Editorial Notes—Personal and General

". . . CANADIAN COUNTY MEDICAL SOCIETY held their regular quarterly meeting June 4th, as the guests of Dr. and Mrs. Joseph T. Phelps, El Reno. A dinner was served the guests, after which Dr. C. P. Bondurant, Oklahoma City, presented a lantern slide lecture on "Diseases of the Skin, Commonly Seen in General Practice." Dr. J. K. Kuhn, Oklahoma City, was the other additional guest. Dr. Erwin Walter Blatter, head of the medical staff of the Southwest Reformatory, was made an honorary member of the Society. . . ."

Have You Heard?

HENRY H. TURNER, M.D., Oklahoma City, will be one of the program participants at a one day postgraduate course scheduled by the University of Texas School of Medicine on July 20. He will appear on two panel discussions as well as talk on the subject "Some Atypical Problems of Myxedema."

On the preceding night, he will talk to a reunion of former residents of Texas Medical Center Hospitals on the subject, "Male and Female Hypogonadism and Infertility."

B. T. BRUNDAGE, M.D., Thomas physician, has been appointed to the State Board of Health by Governor Raymond Gary. Doctor Brundage will succeed ROY L. FISHER, M.D., formerly of Frederick, who has moved out of the state.

SAM DAKIL, M.D., McAlester physician, is moving to New Orleans where he will receive two years' ear, nose and throat training at Tulane University School of Medicine.

EUGENE FLOCK, M.D., who has been a member of the faculty of the University of Oklahoma Medical Center for the past four years, has moved to Weatherford, Oklahoma.

JOHN H. LAMB, M.D., Oklahoma City, was guest speaker at the New York State Medical Society in New York City, May 14. He spoke in the section on Dermatology and discussed polymorphic light-sensitive eruptions. He also participated in a panel discussion of the influence of ultraviolet light on the human skin.

MARSHALL O. HART, M.D., Tulsa physician, has been appointed by Governor Raymond Gary to serve a one-year term on the state board of medical examiners. He will succeed the late L. S. WILLOUR, M.D., McAlester.

PHYSICIAN PLACEMENT

General Practice

Clyde R. Danks, M.D., 4780 Easley Street, Millington, Tennessee, age 29, married, graduated from University of Louisville, 1955. Will be available mid-August, 1958 upon completion of military service.

Sam Davis, M.D., 1605 N.E. 38, Oklahoma City, age 33, married, graduated from University of Oklahoma School of Medicine, 1956, veteran, will be available July 1, 1958.

Archie Neal McIntyre, M.D., 138 LeHardy Dr., Savannah, Georgia, age 28, married, graduated from Louisiana State University School of Medicine, 1955. Will be available November 3, 1958 upon completion of military service.

General Surgery

Duane H. Dougherty, M.D., 201 Avon Road, Tonawanda, New York, age 30, married, veteran, New York University 1953, board qualified, will be available July, 1958.

Charles Edward Selah, M.D., Huey P. Long Charity Hospital, Pineville, Louisiana, age 31, married, will complete board requirements in June, 1958, veteran, graduated from Tulane 1951, will be available July 1, 1958.

Ralph L. Hopp, M.D., 338 E. Kingsley, Ann Arbor, Michigan. Married, veteran, Board Certificate held in General Surgery. Graduated Indiana University, 1950, will be available July 1, 1958.

Francis Patrick Lamb, M.D., 6426 Evergreen, Berkeley 21, Mo., age 35, married, veteran, graduated from St. Louis University in 1951, Diplomate American Board of Surgery, will be available July, 1958.

Internal Medicine

Robert Edward Weaver, M.D., 1133 West Frey Street, Stephenville, Texas, age 34, married, board certified in internal medicine, graduated from Universit of Pennsylvania School of Medicine, 1949, veteran, prefers to practice in or near a teaching center. Will be available August, 1958.

Locum Tenens

Jack David Shirley, M.D., 430 Bellevue, Lafayette, Louisiana, age 27, married, will be inducted into U. S. Navy, October 6, 1958, graduated from University of Oklahoma in 1956, would like position for three months doing general practice. Will be available July 1, 1958.

Orthopedic Surgery

H. N. Hamilton, M.D., 13 Evergreen Road, Little Rock, Arkansas, age 36, married, veteran. Johns Hopkins, 1945, finishing Orthopedic Residency July 1958 and will be available at that time.

Thoracic and Cardiovascular Surgery

Wayne E. Hird, M.D., McGuire VA Hospital, Richmond 19, Virginia, age 31, married, Korean veteran, University of Kansas 1950, Board qualified in General Surgery, Thoracic and Cardiovascular exams will be completed by next July. Will be available July, 1958.

James L. Russell, M.D., Charity Hospital of La., New Orleans 12, La., age 30, veteran, graduated from University of St. Louis 1949, Board certified in General Surgery, Board qualified in Thoracic and Cardiovascular. Will be available August, 1958.

CLASSIFIED ADS

WELL EQUIPPED OFFICE for G. P. or O. B.-GYN. in downtown medical center, with background of large practice. Will lease, sell, or turn over everything for privilege of seeing a few old patients for two or three hours a week. Call JA 4-3203 or JA 4-3218, Oklahoma City.

CLINIC LOANS: If you are planning to build a clinic, and need to secure financing, call Pat Allen, WI 2-2409 or write 1201 Classen Dr., Oklahoma City.

FOR SALE: Attractive business building, furnishings and equipment. Close by downtown Tulsa. Building is six years old and in good condition. Now being used by two physicians. Other new buildings recently erected close by. Available by July 1, 1958. 1321 South Main or call LUther 4-2481 in Tulsa.

Proceedings of the 52nd Annual Session of the House of Delegates of the Oklahoma State Medical Association

CLOSING SESSION

The Closing Session of the 52nd Annual Session of the House of Delegates of the Oklahoma State Medical Association was called to order by the Speaker of the House, Doctor Clinton Gallaher, at 7:30 p.m. in the Hall of Mirrors of the Municipal Auditorium in Oklahoma City.

The Credentials Committee reported a quorum was present.

Doctor Gallaher called for introduction of guests. Doctor Sam A. McKeel, Ada, Past President of the Association, was presented.

Additional announcements were called for. None were forthcoming.

The Chair called on Doctor John E. McDonald, Tulsa, a member of the Legislative Committee of the A.M.A. for a report on current legislation facing the profession.

Doctor McDonald spoke briefly to the Delegates, emphasizing the responsibility of the profession in keeping informed of legislation pending, and also of the great need for personal contact of Congressmen, Senators, etc., in order that they might be informed of the viewpoint of the physicians. Doctor McDonald urged the physicians to take the lead in opposing legislation detrimental to the profession of medicine.

The next order of business was the report of the Resolutions Committee. Doctor Gallaher called on Doctor C. M. Hodgson, Kingfisher, Chairman of this Committee for a report.

As the first Resolution, Doctor Hodgson read the following, submitted by the Carter, Love and Marshall Counties Medical Society:

WHEREAS, the County and District Societies of the Oklahoma State Medical Association recognize the need for timely consideration of problems that will be brought before the House of Delegates at its Annual Meeting;

THEREFORE BE IT RESOLVED that the House of Delegates instruct its officers, Council, and Committees to submit their reports to the Secretary of the Oklahoma State Medical Association in sufficient time to be forwarded to County and District Societies at least thirty days prior to the Annual Meeting of the House of Delegates.

Doctor Hodgson reported, The Resolutions Committee has considered the Resolution from the Carter, Love, and Marshall County Medical Society, which in essence, requests the Executive Office to provide the County Medical Societies, at least thirty days prior to the Annual Meeting, of the important problems that will be brought before the House of Delegates.

Your Committee is in favor of the intent of this resolution and recommends that the resolution be adopted with the following understanding: That the material sent to the County Societies from the Executive Office will outline the important problems to be brought before the House of Delegates, but will not include all final written reports.

Doctor Hodgson moved the adoption of the Resolution and the recommendations of the Committee. The motion was seconded and upon being put to vote, the motion carried.

The next resolution to be presented by Doctor Hodgson was from the Canadian County Medical Society:

WHEREAS, under the procedure followed by the Oklahoma Department of Public Welfare doctors rendering professional services to persons on the Welfare rolls are required to submit their bill for such services to the Department of Public Welfare and the bill is paid by the Welfare Department with public funds derived from taxes; and

WHEREAS, this practice will encourage government interference with the practice of medicine and governmental control thereof.

NOW, THEREFORE, BE IT RESOLVED BY THE HOUSE OF DELEGATES OF THE OKLAHOMA STATE MEDICAL ASSOCIATION IS SESSION ASSEMBLED:

That from and after the first day of June, 1958, no member of this Association shall bill the department of Public Welfare for medical or professional services rendered to any patient on the welfare rolls, but on the contrary such bills shall be rendered to the patient or such person designated by the patient or such other person legally liable for the same.

Doctor Hodgson reported the following recommendation by the Resolutions Committee:

In lieu of the action by the House of Delegates of the 52nd Annual Opening Session, this Committee recommends that the context of this Resolution has already been decided by the House of Delegates.

Doctor Hodgson moved that the Committee recommendation be approved and adopted. The motion was seconded, and following brief discussion, the motion carried.

The next resolution to be presented by the Chairman was submitted by the Tulsa County Medical Society:

WHEREAS, The Blue Shield Plan of Oklahoma was originally established by the physicians of the State of Oklahoma to provide the highest type of prepaid surgical and medical care insurance to the general public, and

WHEREAS, The Oklahoma State Medical Association, by action of its House of Delegates, has previously recognized the existence of the Blue Shield Plan of Oklahoma, endorsed it in principle, and approved the participation of the medical doctors of Oklahoma in its program, and

WHEREAS, Many problems arise from time to time which are of mutual interest to the Medical Profession of Oklahoma and the Blue Shield Plan of Oklahoma, problems whose solutions are essential to the most effective operation of the Plan,

NOW THEREFORE BE IT RESOLVED: That the House of Delegates direct the creation of a permanent committee to be known as the Blue Shield Liason Committee; the number of members of this Committee shall be determined by the Council; and the personnel, including the Chairman, shall be appointed from the membership of the Oklahoma State Medical Association or the officials and members of the Blue Shield Plan of Oklahoma, and

BE IT FURTHER RESOLVED: That this Blue Shield Liason Committee shall receive, deliberate upon and make recommendations on any problems pertaining to the Blue Shield Plan of Oklahoma and to relative matters in the field of prepaid medical and surgical care insurance, which may be brought to its attention by the officials and members of the Oklahoma State Medical Association or the officials and members of the Blue Shield Plan of Oklahoma, and

BE IT FURTHER RESOLVED: That this Blue Shield Liason Committee shall promote a spirit of cooperation with the Blue Shield Plan of Oklahoma in making it into an effective instrument for the benefit of the people of Oklahoma.

Doctor Hodgson reported that the Resolutions Committee recommended the adoption of this Resolution, and it was so moved by Doctor Hodgson. The motion was duly seconded and carried.

The next resolution to be presented was submitted by the Okmulgee County Medical Society.

WHEREAS, the members of the Okmulgee County Medical Society, in a regular meeting assembled this date, at which a quorum of members are in attendance under its By-Laws, have considered and discussed certain problems and issues confronted by practicing physicians and surgeons constituting the members of this Society and have deemed the necessity of positive and affirmative action by and in behalf of this Society and its members in the respects and particulars hereinafter contained in this Resolution:

NOW THEREFORE, Be it resolved by the Okmulgee County Medical Society that the UMWA Welfare Fund or any similar organization, which knowingly and willingly denies its beneficiaries the right of free choice of physicians or free choice of hospital as defined by the AMA Guides to Relationships between State and County Medical Societies, be vigorously condemned.

Doctor Hodgson advised the House that the Resolutions Committee recommended the adoption of this resolution. Doctor Hodgson so moved. The motion was seconded, and following brief discussion, the motion carried.

The next resolution to be presented by Doctor Hodgson was one submitted by the Pittsburg County Medical Society.

WHEREAS; A fund has been provided by royalty collected on coal mined on a tonnage basis, known as the United Mine Workers of America Welfare and Retirement Fund, for the purpose of providing non-industrial medical and hospital care for the miners and their dependents, and

WHEREAS; The fund is administered by a Board of Directors composed of three people, one selected by the United Mine Workers of America, one selected by the coal operators, and a third selected as a neutral party, and with the assistance of a medical director selected by the three board members, currently in the person of Doctor W. F. Draper, and

WHEREAS; in the beginning of the operation of this plan, all medical doctors were given an opportunity to participate in this plan on a voluntary basis, and WHEREAS; the administration of the United Mine Workers of America Welfare and Retirement Fund has altered its original agreement in that it now designates certain doctors to do its medical service, thus eliminating certain doctors who previously participated, and depriving them of the opportunity of participation without known cause or recourse.

THEREFORE; be it resolved that the President of the Oklahoma State Medical Association be instructed to form a Committee to be a liason between the physician and the administration of the United Mine Workers of America Welfare and Retirement Fund. The purpose of this Committee is:

1. To make a thorough study of the entire problem involved in the present operation of the fund as it pertains to the doctors of Oklahoma.

2. To hear complaints arising with the individual doctors and/or the Area Administrator of the fund.

3. To investigate complaints by the doctor and the administrator both at the local level and the level of the area administrator.

4. To make recommendations to the doctor and the area administrator.

And be it further resolved that in case of unsatisfactory negotiation in these matters with the administrator, the committee shall develop a report of the negotiations together with a recommendation of procedure to be submitted to the Council for approval and implementation.

Doctor Hodgson advised that this Resolution had been discussed with the representatives of the Pittsburg County Medical Society, and inasmuch as the committee has been informed that the incoming President, Doctor Mohler, has indicated that he will appoint a liason Committee, said committee to be in a position to act, if and when negotiations can be reopened with the UMWA. The Committee recommends this resolution not be adopted. Doctor Hodgson so moved. The motion was seconded.

Following discussion of the Resolution and the motion, it was moved by Doctor McCarley that the recommendation of the Resolutions Committee not be adopted.

Doctor Duer rose to a point of order, stating, that the motion was out of order in that there was a motion before the House which superseded the one made by Doctor McCarley. The Chair ruled Doctor McCarley's motion invalid.

Following futher discussion, in which the Pittsburg County Medical Society representatives evinced a desire for the resolution to be adopted, a vote was called for the motion before the House. The motion was defeated.

Doctor McCarley moved the adoption of the Resolution; the motion was seconded.

Doctor Ross moved that the motion be amended as follows: "Anyone, regardless of whether injured or an accident or paid by the government insurance, or private capital, have free choice of physician." Motion seconded. Following further discussion, in which the motion was re-read, Doctor Duer moved that this resolution be tabled. The motion was seconded. Upon being put to vote, the motion for tabling was defeated. A vote was called for on the motion as amended. The motion carried.

Doctor Hodgson advised that the next Resolution to be presented was submitted by the Grady County Medical Society.

WHEREAS, our beloved country was established in order to secure the blessings of liberty to ourselves and our posterity, and the philosophy of free private enterprise has brought our citizens the highest standard of living, the greatest degree of happiness, and the highest standard of health the world has ever known, and

WHEREAS, Recent years have witnessed a steady encroachment by the government into the various fields of private enterprise, and good evidence exists that this encroachment will continue to be pressed by those interested in such movement, and

WHEREAS, experience in other countries clearly indicates that such encroachment in the field of medical care leads to politically dominated, inefficient, costly, socialistic medicine, easily subject to abuse and not easily subject to constructive improvement once instituted, and under which the taxpayers receive poorer medical care at greater cost to themselves, and

WHEREAS, The members of the Oklahoma State Medical Association deplore all such tendency to abandon the principles which have made this country great, but wish to make clear certain minimum conditions without which they could never take part in any proposed health program, and in so doing solicit the support of their colleagues in other states of our great union,

NOW, THEREFORE, BE IT RESOLVED That the members of the Oklahoma State Medical Association cannot accept any system of government-sponsored practice of medicine which does not provide the following cherished principles:

(1) Freedom by the patient to consult the physician of his choice

(2) Freedom by the physician to choose those whom he will serve

(3) Freedom by the physician to practice his calling in accordance with the recognized code of medical ethics

(4) Freedom by the physician to care for his patients in accordance with established scientific principals, not subject to interference by a third party

(5) Freedom by the physician to practice his profession on a fee-for-service basis

(6) Freedom by the physician to collect a portion of the fee for each service performed directly from the patient

(7) Freedom by the physician to practice such a system of government-sponsored practice of medicine under the terms of a written contract between the government and the various State Medical Associations, such contract to be of limited duration and renewable by mutual agreement of contracting parties

(8) Freedom by the State Medical Association to have professional representation at the policy determining level of such a proposed system

(9) BE IT FUTHER RESOLVED, That the House of Delegates of the Oklahoma State Medical Association instruct their delegates to the American Medical Association to bring this resolution before the next meeting of the American Medical Association for endorsement.

Doctor Hodgson reported that the Resolutions Committee approved this Resolution pending deletion of items 6, 7 and 9. Doctor Hodgson moved that the recommendation of the Resolution Committee be adopted. The motion was seconded.

Following discussion it was moved by Doctor Burton that the motion be amended to include item number 9. This admendment to the motion was seconded. Following brief comments, the amendment to the motion was put to vote and carried.

As the Resolution was further discussed, it was moved by Doctor McClure that the motion be amended to include items number 6 and 7 in the Resolution. This amendment was also seconded. The amended motion was put to vote and carried. The Chair advised that the adoption of the amended motion, in effect, adopted the entire resolution.

The last Resolution to come before the House of Delegates, Doctor Hodgson reported, concerned the World Medical Association.

WHEREAS, The House of Delegates of the American Medical Association has recommended that every member of the A.M.A. join the U. S. Committee of the World Medical Association, and has urged that its component state associations "support and give official recognition to the . . . U. S. Committee in order to achieve the objectives of the World Medical Association in protecting the freedom of the medical practice and increasing the influence of the practicing medical profession at the international level", and

WHEREAS, this society recognizes that it is as important for each physician to support his international organization as to support his county, state and national medical societies, therefore be it

RESOLVED, that the Oklahoma State Medical Association hereby expresses its support of the principals and objectives of the World Medical Association and urgently recommends that each member of this Society join the U. S. Committee of the W.M.A. and take an active part in its services to the medical profession and the peoples of the world.

Doctor Hodgson stated that the Resolutions Committee recommended the adoption of this resolution, and he so moved. The motion was seconded and carried.

Thus concluded the report of the Resolutions Committee.

The next business on the agenda of the House, Doctor Gallaher stated, was the report of the Committee on Constitution and By-Laws. Doctor William T. Gill, Ada, Chairman of the Committee gave the following report:

COMMITTEE ON CONSTITUTION AND BY-LAWS

"This afternoon you adopted a revised and amended constitution. An amendment to the constitution has been submitted, which will now be read. It requires no action now, but will be voted on a year from now. This amendment is reported by your Committee without recommendation. It is as follows:"

Amend Article VIII, Section 5 of the Constitution by adding at the end thereof the following sentence,

"If the office of President-elect becomes vacant, the president shall immediately call a special session of the House of Delegates for the purpose of filling the vacancy by election."

This afternoon, the standing committee of the Association on Constitution and By-Laws, reported an amended and revised set of By-Laws, which report was accepted by the House of Delegates. I now move that those By-Laws, as revised, amended, and reported, be adopted as the By-Laws of the Oklahoma State Medical Association.

The motion was duly seconded. It was discussed by Doctor Ritzhaupt, who objected to the Council becoming the Judicial body of the Association. Doctor Ritzhaupt moved that the adoption of the By-Laws be postponed for a year. The Chair declared the motion lost for want of a second. The motion to adopt the By-Laws was put to the House of Delegates and duly passed.

Doctor Gallaher announced that the next order of business would be the election of officers.

The first office to be filled was that of the President-Elect. The candidate for this office was Alfred T. Baker, M.D., Durant, nominated in the opening session. Doctor Gallaher called for futher nominations. None were forthcoming.

Doctor Phelps moved that the nominations for this office be closed and that Doctor Baker be elected by acclamation. The motion was seconded and upon being put to vote, the motion carried.

The next office to be filled was that of the Vice-President.

It was moved by Doctor John E. McDonald that the nomination for Vice-President be closed, and that the nominee, Francis R. First, M.D., Checotah, be elected by acclamation. The motion was duly seconded and carried.

The next office to be filled was that of the Speaker of the House of Delegates. At this time Doctor Gallaher turned the Chair to Doctor Carlock to conduct the election.

It was moved by Doctor Ridgeway that the nominations for this office be closed and the nominee, Doctor Gallaher, Shawnee, be elected by acclamation. The motion was duly seconded and carried.

The next office to be filled was that of Vice-Speaker of the House of Delegates. The Chair was resumed by Doctor Gallaher.

Nominees for this office were Elmer Ridgeway, M.D., Oklahoma City, and C. M. Hodgson, M.D., Kingfisher.

Doctor Hodgson requested that his name be withdrawn for the nomination of Vice-Speaker, and in lieu thereof placed in nomination the name of J. Hoyle Carlock, M.D., Ardmore. It was so ordered.

Doctor Ridgeway asked that his name be withdrawn as nominee for this office. It was so ordered.

Doctor Nolen Armstrong placed in nomination the name of Marvin B. Glismann, M.D., Oklahoma City, for the office of Vice-Speaker.

Doctor McDonald moved that the nominations be closed. The motion was seconded and carried.

Doctor Gallaher announced that the vote for Vice-Speaker of the House would be by ballot, and requested that the tellers come forward.

Following the voting and the tabulating thereof, the Chair advised that Doctor J. Hoyle Carlock was elected as Vice-Speaker of the House of Delegates.

The next office to be elected was that of Delegate to the American Medical Association.

The nominees for this office were Doctor Wilkie D. Hoover, Tulsa; Doctor E. H. Shuller, McAlester, and Doctor Marshall O. Hart, Tulsa. Doctor Gallaher called for futher nominations for this office. None were forthcoming.

The Chair called on the Tellers to conduct the vote by ballot, and advised that two ballots would be required.

Following the first ballot, a subsequent ballot was taken. The Delegates were advised that the names of Doctor Hoover and Doctor Hart were on the second ballot. At the conclusion of the second ballot, Doctor Gallaher announced that Doctor Wilkie Hoover had been elected as the Delegate to the A. M. A.

The next office to be filled was that of Alternate Delegate to the American Medical Association. The nominees for this office were Doctor Bruce Hinson, Enid; Doctor H. E. Denyer, Bartlesville, and Doctor Joe. L. Duer, M.D., Woodward.

Doctor Hinson requested that his name be withdrawn from the nominations. It was so ordered.

Doctor Gallaher called for futher nominations. Doctor Sturm nominated Doctor Marshall O. Hart, Tulsa, for the office of Alternate Delegate. Doctor Hart refused the nomination.

Doctor E. K. Norfleet, Bristow, nominated Doctor E. H. Shuller for the office of Alternate Delegate.

It was moved by Doctor Phelps that the nominations be closed. The motion was duly seconded and carried.

Doctor Blocksom nominated Doctor John E. McDonald for the office of Alternate Delegate. The Chair advised that the nominations had been closed, therefore, this nomination was out of order. The Chair also advised that two ballots would be necessary.

On the first ballot, Doctor Denyer was eliminated and a second ballot was called for. At the conclusion of the second ballot, Doctor Gallaher announced that Doctor Joe. L. Duer had been elected as Alternate Delegate to the A.M.A.

The next order of business was the election of Councilors and Vice-Councilors for Districts 3, 6, 9, and 12. The following Councilors and Vice-Councilors were elected by acclamation:

DISTRICT 3	C. M. Hodgson, M.D., Kingfisher Henry T. Russell, M.D., Enid
DISTRICT 6	P. E. Russo, M.D., Oklahoma City E. E. Shircliff, M.D., Oklahoma City
DISTRICT 9	R. L. Currie, M.D., Sallisaw Burdge F. Green, M.D., Stilwell
DISTRICT 12	William T. Gill, M.D., Ada M. E. Robberson, M.D., Wynnewood

Following this all officers elected were asked to come forward and be introduced.

President-Elect - A. T. Baker, M.D., Durant

Vice-President - Francis R. First, M.D., Checotah

Speaker of the House - Clinton Gallaher, M.D., Shawnee

Vice-Speaker of the House - J. Hoyle Carlock, M.D., Ardmore

Delegate to the A.M.A. - Wilkie D. Hoover, M.D., Tulsa

Alternate Delegate to the A.M.A. - Joe L. Duer, M.D., Woodward

This completed the business of the 52nd Annual Session of the House of Delegates of the Oklahoma State Medical Association. The meeting was declared, by the Speaker, to be adjourned at 10:30 p.m.

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*Finnerty, F. A. Jr.: New York State J. Med. 57:2957 (Sept. 15) 1957.

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